WOOD and wood products

May, 1952

Omar Hilton

See Page 21 — WOOD SALUTES

In the Woods

of America, another big production year is underway.

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Two New Treating Developments

Read how dip treating prevents stain in the south —how a vacuum dip makes better millwork in Iowa.

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- Vapor drying
- Saw Maintenance
- New Box Design
- Trends
- Names
- Markets
- Wood Dictionary
- Patent Digest

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WOOD and wood products

Volume 57 No. 5

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(advertisement)

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• • •

1952 version of a virgin: A virgin is a homely little girl about three years old.

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• • •

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• • •

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• • •

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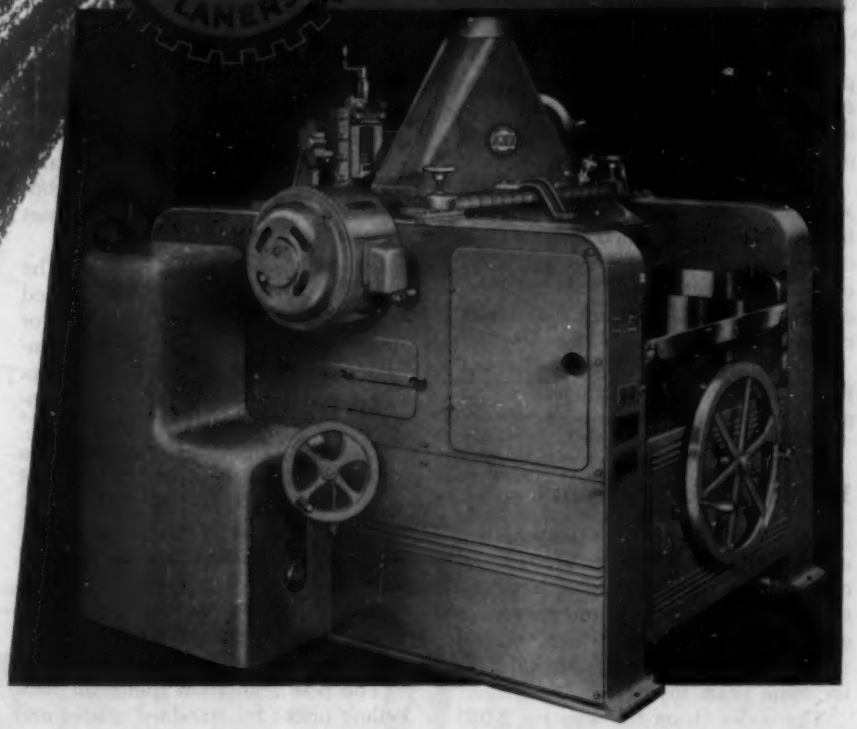

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WOOD and wood products Industry Trends

Freight Rates Up

The Interstate Commerce Commission announced on April 14, 1952, a new railroad freight rate structure to take the place of the temporary rate increase that had previously been in effect.

The new order wipes out the temporary increase 6 percent and substitutes an increase of 15 percent, making a net permanent increase of 9 percent.

At the same time, an actual dollars and cents increase of 12 cents per hundred was established. This supercedes the temporary increase of 4 cents and amounts to a net total increase of 8 cents, the most that a rate can be increased in any one case.

It is estimated that average lumber freight bills may be increased by as much as $2.00 per thousand.

TV Demand to Spurt

Ending a three and a half year ban on new television stations, the federal communications commission, in effect, signaled the start of a brand new wave of television buying which should create a steady demand for cabinets for some years to come.

The order clears the way for 2,053 stations throughout the nation. Many of the new stations will go into areas which previously have had no television coverage whatever. Other stations will apparently be assigned for educational purposes. These may be expected to gain new viewers even in areas that already have television.

Government Regulations

New Southern Hardwood Ceiling Prices: The office of Price Stabilization has issued the first of a number of tailored regulations for the hardwood lumber industry. It spells out dollars-and-cents ceilings for standard grades and dimensions of hardwood and yellow cypress lumber produced in the Southern hardwood region.

The ceilings are prescribed in Ceiling Price Regulation 132, effective March 29, 1952. They apply to sales by sawmills, planing mills and concentration yards, including sales through commission men.

The regulation supersedes the General Ceiling Price Regulation (GCPR) for the products covered. The new ceilings are approximately at the same levels as current ceilings which were frozen on January 26, 1951, by the GCPR.

Separate dollars-and-cents ceiling price regulations are planned by OPS for other hardwood regions which will include North Central Indiana and part of Illinois and Northern Wisconsin, and also the extreme southern part of Illinois.

Fir Ceiling Price Change: The Office of Price Stabilization issued dollars-and-cents ceiling prices for sales by manufacturers of fir and hemlock lumber produced in California and in and west of the Cascade Mountains in Washington and Oregon.

The new ceilings are prescribed in Ceiling Price Regulation 128, and were effective March 18, 1952. They are at approximately the average level of prices established by the General Ceiling Price Regulation (GCPR) freeze on January 26, 1951, which are, generally speaking, the prices in effect today.

The new regulation spells out base ceiling prices for standard grades and dimensions. These are the producer's ceilings f.o.b. mill, f.o.b. car at mill or customary railroad shipping point, f.o.b. truck at mill, f.o.b. barge or scow alongside mill dock, or f.a.s. (free along-side ship) if he sells on an f.a.s. basis. On sales made on a delivered basis, appropriate transportation charges may be added as provided in the regulation.

Lumber

Unfilled Mill Orders Decline: Unfilled order files at the mills declined almost 5 percent during the fourth quarter, a continuation of the downward trend experienced since the end of 1951's first quarter. Gross mill stocks inched upward, while retail yard lumber stocks remained relatively constant. In spite of a reduced demand, average wholesale prices of construction lumber as reported by the U. S. Bureau of Labor Statistics showed little change in the fourth quarter.

Current lumber production in the South is about 10 percent above the early weeks of 1951, but severe winter weather held down production in the Western regions. In the first few weeks of 1952, new orders received by mills reporting to the National Lumber Trade Barometer were approximately 10 percent above lumber shipments and 15 percent above current production.

Housing

Quarter Million Prefabricated Homes: Since World War II, there have been one-fourth of a million prefabricated homes built in the United States, according to Harry H. Steidle, Manager, Prefabricated Home Manufacturers' Institute. He declared that these 250,000 homes represent one in every 25 new dwelling units built during the postwar period in nonfarm areas.

Mr. Steidle painted an encouraging picture for 1952 by declaring that prefabricators expect to supply 8 percent of the new homes built. It was pointed out that the public wants and needs the advantages of the mass-production of homes.

Furniture

Cautious Buying Prevails: The home furnishings business at the retail level has shown a considerable decline in some industrial areas, according to Seidman & Seidman, Certified Public Accountants.

Nevertheless, business generally as reported by furniture manufacturers in February, appears to be considerably better than sentiment. Total buying is still high when measured by any standard, other than the scare buying waves. However, the pattern of buying is cautious. The tendency of buyers is to shorten commitments. While this has resulted in reducing dealers' inventories, it has at the same time increased manufacturers' inventories.

(Continued on page 12)

Let's get down to "brass tack" facts about

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Fact No. 1

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Get the price on the Chevrolet truck that's the right size, type and capacity for your work. You'll find that it lists for less than any other truck capable of doing the same job. Chevrolet has the lowest priced line in its field.

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Fact No. 3

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No truck is worth the price if it doesn't get the job done—fast and sure. Chevrolet trucks are *factory-matched* to the payload, *factory-matched* to the job. There's a standard body and chassis, or chassis for special body, that's just right for your work.

Fact No. 4

YOUR TRUCK INVESTMENT IS SAFER!

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CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICHIGAN

Trends

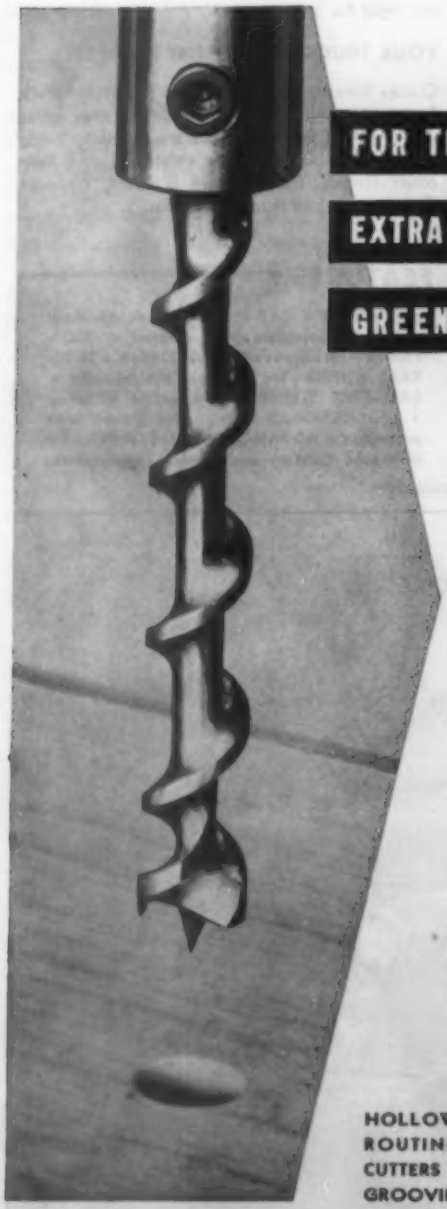
(Continued from page 8)

Orders booked in February were off 13 percent compared with the "market month" of January. This was a very much smaller seasonal drop than the industry has averaged in recent years.

Shipments in February were up 4 percent over January, but down 12 percent compared with February 1951. For the two months, shipments were off 16 percent compared with 1951. Unfilled orders at the end of February were about 7 percent higher than at the end of January and represented a backlog equivalent to some seven weeks shipments at current levels. Compared with February 1951, the backlog was off 43 percent.

Freight Rates Increase: Buyers of home furnishings are now required to be traffic specialists as well as judges of merchandise acceptance, a study of freight costs by the American Furniture Mart, Chicago, reveals. Recent increases in transportation rates for furniture amount to as much as 118 percent in some merchandise, according to Gen. Lawrence H. Whiting, President of the Mart. "Less-than-carload freight rates on shipments of furniture as used by the typical store, went up from 50 to 112 percent last year," Gen. Whiting said. In addition, there was a general increase of nine percent in the Eastern territory, and of six percent in the rest of the nation which became effective last Fall. The rails say that this increase in revenue is insufficient and they are pushing for an almost equal increase.

Increasing freight rates inevitably mean a shift to trucking, and consequent loss of revenue by the rail carriers. The amount of furniture and home appliances delivered to the American Furniture Mart by truck today contrasts startlingly with that when the building opened in 1924. One advantage of truck transportation, is the fact that crating is not required for this form of transport, while costly packing standards required by the railroads were substantially advanced in 1948, with resultant decrease in freight claims.



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CUTTERS • COUNTERSINKS • MAKERS OF TECO
GROOVING TOOLS FOR TIMBER CONSTRUCTION

Wood Pulp

Industry Never Stops Growing: Except for temporary dips in public and industrial demand, the paper industry has never stopped growing, according to an article in a recent issue of the publication issued by the American Paper and Pulp Association.

Papermaking is the only top ranking industry with a comparable endless source of raw material—pulp from growing trees which are forever renewable by modern forestry methods. Through chemical research, the wood fiber can be treated in many different ways in order to adapt it to the changing demands of paper mills. And paper itself—through similar research—will continue to be remarkably adaptable to changing public needs and habits. By its own characteristics, as well as the characteristics of the wood fibers which are the base of pulp manufacturing, paper will continue to find new uses, and also to replace other materials in both industry and public use.

Imports Favor Canada: Early 1952 import figures on wood pulp continue to reflect a healthy demand on the part of the U. S. paper industry, and indicate that the down trend in pulp from Scandinavian sources continues, according to a spokesman for the American Paper and Pulp Association.

Generally, 1952 appears to be following the pattern of wood pulp imports last year, when European wood pulp fell off from 28 percent of the total to only 20 percent, whereas im-

(Continued on page 16)

Sea Swirl

T. M. REG.

Here is the *new look* in ceilings. It is achieved with *Sea Swirl* decorative plywood, made from superior grades of Douglas fir plywood. This three dimension plywood is beautiful, practical and versatile. Interior and exterior types are available in 4′ x 8′ size, 5/16″ thickness (other sizes on special order). Uses are unlimited in remodeling or new construction: for ceilings, walls, built-ins, furniture…*Sea Swirl* is available at APMI sales warehouses. Contact the one nearest you or write for illustrated booklet.

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SALES OFFICES: 31 State Street, Boston, Mass.; 1854 Broe Burn Road, Altadena, California.

Trends

(Continued from page 12)

ports from other North American countries into the U. S. rose from 72 to 80 percent of the total imports. January imports from Canada, including Newfoundland, were 145,808 short tons, slightly under the monthly average for 1951. January figures for European imports were 30,550 short tons as against 61,290 for the same month in 1951. This extreme drop cannot be taken as significant, however, because of varying shipping conditions overseas in midwinter, it was pointed out.

Research

Steady Income from Farm Woodlot: Oregon and Washington's 50,045 owners of farm forests are watching with interest experiments in Snohomish County, Washington, where farmer-owned tree farms have been cropped for 12 years with surprising results. Farmers have taken as much as $100 an acre off their 35 to 60 year old forests in the past 12 years, according to W. D. Hagenstein, the fir industry's chief forester, and they still have a better stand of timber than when they started.

Thick stands of young trees were thinned out, like a farmer thins his rows of carrots and beets. Saw logs, pulpwood, poles and piling and fuelwood were realized from this thinning, which is done every few years.

Greater Strength for Wood: Mexican chemists of the Department of Agriculture are conducting studies, based on experiments announced by scientists of the University of Puerto Rico—Doctors George N. Welcott and Luis F. Martorell, entomologists—to give wood greater strength and to free it of destroying action by humidity and insects.

Mexican experiments are going on using "dimetiletrachorphathalate" and "Penssalt CAF", discovered by Dr. Welcott, and the goal here is to see if wood can be actually strengthened enough to have the resistance and duration of cement or other construction materials.

Construction costs in Mexico have been soaring and if the wood experiments are successful, the Department of Agriculture said, it would give impetus to the building of low-priced homes for the poorer classes, using the "strengthened" wood instead of bricks as principal construction material which would reduce costs considerably.

Silvacel is a generic name given by Weyerhaeuser Timber Company to a complete line of whole-wood-fibers. The raw material from which these whole wood fibers are obtained in sawmill leftovers and logging culls-partially decayed logs and broken pieces unusable for sawlogs. An amazing number of uses for Silvacel has been developed by Weyerhaeuser. Most of the following uses are either established uses or near commercialization: diesel fuel, filter stock, linoleum felt base, roofing felt, saturating sheets, automotive felts, automotive gaskets, special filter stocks with beater additives, automobile lubricating oil filters, blotting paper, battery separators, home insulation, cold storage insulation, water-heater insulation, refrigerator insulation, pulp molding, cold molding, oil well drilling fibers, battery box reinforcement fibers, explosive fibers, welding rod floc, automobile molded arm rests, paint brush handles and molded furniture parts. Here is a perfect illustration of how research, both laboratory and market, have made possible the utilization of

(Continued on page 19)

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DIRECTORY OF MECHANICAL ENGINEERS

Trends

(Continued from page 16)

forest raw materials that were previously wasted not only at a profit to the manufacturer but also as a service and new versalite raw material for industry as a whole.

Miscellaneous

Chain Saws: It is estimated that in the West 90 percent of the felling and bucking of saw and veneer logs is done with power chain saws. In the Northeast about 70 percent and in the South only 40 percent. Data collected by the Northeastern Forest Experiment Station show that power saws are twice as efficient as handsaws. The average handsaw cutter of sawlogs gets out about 12 m b f of logs per month whereas the power saw man gets out 25 m b f. In pulpwood comparable figures are 23 and 49 cords. Consequently the swing to power chain saws is increasing. In 1950 manufacturers turned out 40,000 saws while in 1951 the number manufactured was between 130 and 140,000, most of the increase being in one-man models.

Today nationally about 28 percent of the lumber produced is kiln dried at the sawmills and 54 percent is dressed. The importance of these processes is better realized at mills remote from their markets, and confronted with the problem of shipping green lumber under the present high freight rates.

WOODICTIONARY

BLIND NAILING

Nailing in such a way that the nailheads are not visible on the face of the work.

Over

170 JACKSON VENEER LATHES

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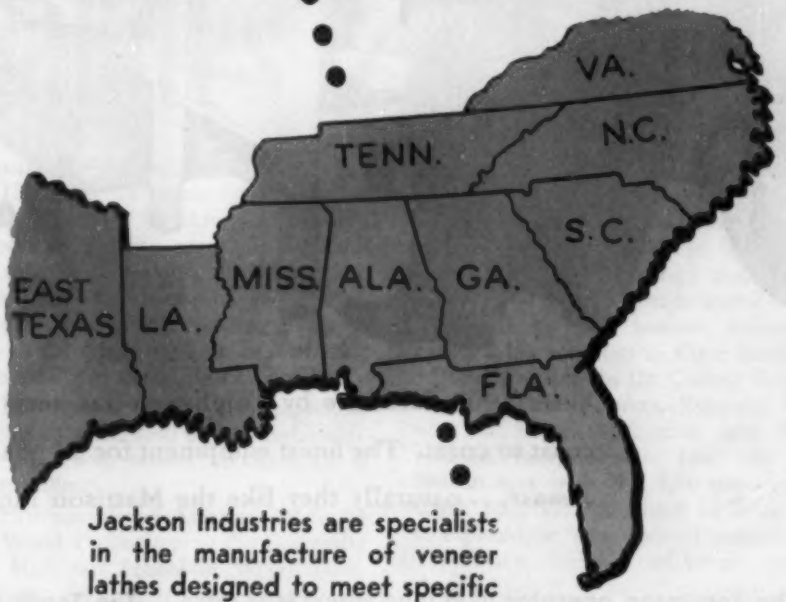
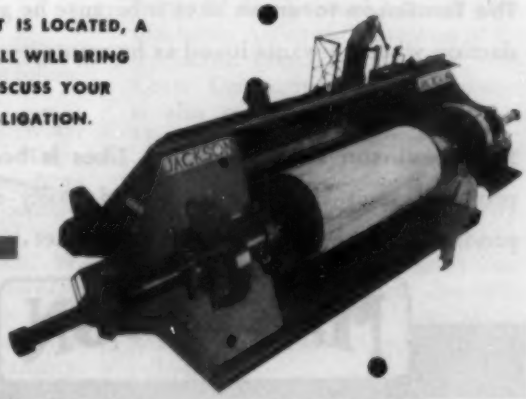


Jackson Industries are specialists in the manufacture of veneer lathes designed to meet specific job requirements.

NO MATTER WHERE YOUR PLANT IS LOCATED, A LETTER, WIRE OR TELEPHONE CALL WILL BRING A JACKSON ENGINEER TO DISCUSS YOUR PROBLEMS. THERE IS NO OBLIGATION.



JACKSON INDUSTRIES, INC.

VENEER MACHINES DIVISION

BIRMINGHAM, ALABAMA

they like the MATTISON MOULDER at Tomlinson . . . . .

Since 1900 Furniture by Tomlinson has been a quality name from coast to coast. The finest equipment for all phases of production are a *must* . . . naturally they like the Mattison Moulder at Tomlinson.

The Tomlinson operator likes it because it is as easy to set-up, feeds so easy and produces so few rejects . . .

The Tomlinson foreman likes it because he gets production when he wants it and as he wants it—*good* . . .

The Tomlinson superintendent likes it because it produces high quality quickly and easily and his production schedules are consistently met . . .

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Yes — makers of Furniture by Tomlinson like the Mattison Moulder — and *you* will like it, too!

MATTISON MACHINE WORKS

ROCKFORD · ILLINOIS

"Industry Statesman . . . . . ."

"Wood Educator . . . . . ."

"Industry Research . . . . . ."

Wood Salutes

With this issue, we are saluting three more top rank executives, each of whom is contributing his expert knowledge and experience in an important department of the forest products industries.

Omar Hilton

Omar Hilton is best known for his devotion to the lumber industry—in which he has been actively employed for forty years—and for his ability to get the industry to pull effectively together in matters of industry concern. His interest in progressive ideas have made him a respected spokesmen for the industry on many occasions.

Hilton started his career with a Southern Pine company in Mississippi, and then worked for a Florida concern which specialized in cypress.

For the past 25 years, Hilton has been with the Bradley Lumber Company of Warren, Ark. He is now sales manager of Hardwood furniture dimension, and a director and vice-president of the company.

Hilton has served his industry and his country in many capacities, including the following:

Past president of the Hardwood Dimension Manufacturers Ass'c.; past president of the Southern Hardwood Producers, Inc.; past chairman of the Hardwood Research Committee; and a member of the O.P.A. Industry Advisory Committee for Hardwood during the war.

Currently, Hilton is serving as a director of the National Lumber Manufacturers Ass'c.; the National Hardwood Producers Ass'c.; the Southern Hardwood Producers, Inc.; the Hardwood Dimension Manufacturers Ass'c.; and Hardwood By-Products.

Louis A. Patronsky

Louis A. Patronsky describes his work briefly as "teaching and research in wood products—especially in woodworking machinery, plywood and adhesives." This descripton hardly does justice to the out standing job that Louis Patronsky has done in increasing the available knowledge of wood.

His contributions are especially valuable in the field of the machinability of wood, where his research is outstanding.

Patronsky is an Associate Professor of Wood Technology at the University of Michigan School of Wood Technology. He is also a Michigan graduate. He has been a member of the Preservations Standards Committee of the National Woodwork Manufacturers Association from 1942 to the present, and was chairman of the group from 1944 to 1951.

Among publications authored or co-authored by Patronsky are the following:

The Effectiveness of Toxic Water Repelling Solutions on Wood. Dept. Eng. Research, U. of M., report to Nat'l. Door Mfgrs. Ass'n., January, 1943. Confidential—unpublished.

Patronsky, L. A. and Kynoch, W. Strength and Physical Characteristics of Wood Flour Filled Phenolic Type Plastics. Nat'l. Advisory Com. on Aero. Tech, Note No 878, January, 1943.

Study of a Method for the Determination of Effectiveness of Water Repellent Solutions and the Development of a Paraffin-wax Mineral Spirit Control Solution. Dept. of Eng. Research, U. of M., report to Nat'l. Door Mfgrs. Ass'n., May, 1945. Confidental—unpublished.

All Veneer Furniture—A New Method of Construction.

Herbert F. Jefferson

Herbert F. Jefferson, of Seattle, Washington, has been actively interested for many years in industry research, wood technology and labor relations—and he has made many contributions to the lumber industry through his activities in these fields.

Jefferson came to the United States in 1916, from London, England, by way of British Columbia and the railroad business. His first job in Seattle was with the Kilbourne and Clark Mfg. Co., of which he became vice-president and general manager.

Jefferson became affiliated with the Nettleton Timber company in 1932 and has since remained as Supervising Engineer of that company's operations, as well as treasurer.

Other activities include chairman of the Products and Research Committee of the National Lumber Manufacturers Ass'c.; and chairman of the Technical Committee of the West Coast Lumbermen's Ass'c. Jefferson is also a director of Stetson Ross Machine company in Seattle.

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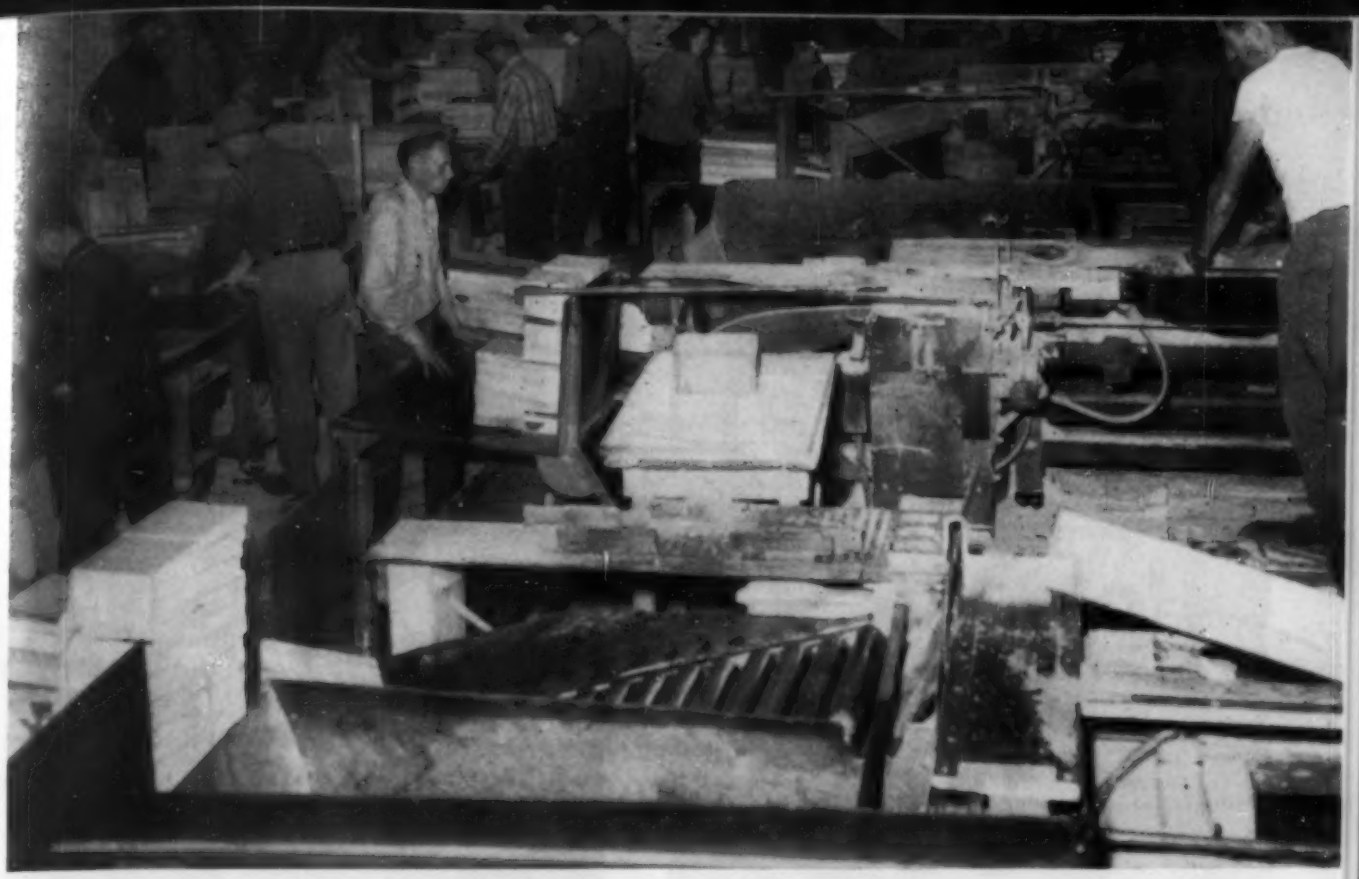


You can keep your men and machines busy if you know . . .

How to Get Military Packaging Contracts

by Peter Grant

Before any manufacturer can expect to bid intelligently on any Military Packaging Contract, he must first possess a sound knowledge of specification standards because practically all packing of Army supplies and equipment is specification packing. There are a number of places where he may obtain this information but he will save himself considerable time and misdirected effort by procuring from the Supt. of Documents, Government Printing Office, Washington, D. C. a copy of the "U. S. Army Index of Specifications (including MIL (JAN) Standards" which is now available for only $1.50.

The Corps of Engineers is the procurement agency of the Department of Defense which operates to make effective use of and to conserve the lumber supply by determining lumber needs and uses, proper requisitioning of species and grades, and specification limitations. All specifications are established only after exhaustive research and study and testing under actual field conditions as well as simulated laboratory tests.

During World War II, the Container Coordinating Committee of the War Production Board, the U. S. Forest Products Laboratory and representatives of the Military Forces combined their efforts to establish military designations of various container load types. Type I—an easy load, Type II—an average load, and Type III— a difficult load, which were subsequently included in "Joint Army and Navy Specifications JAN-P-106a" and other container specifications.

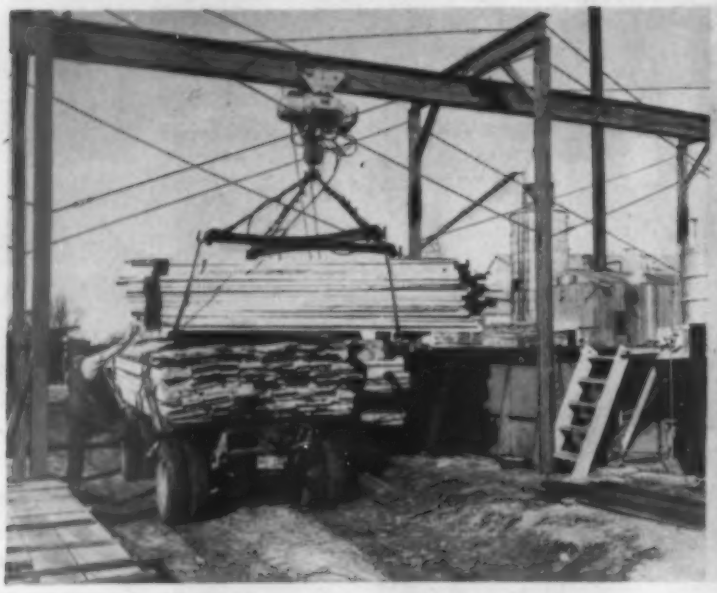
Aside from the weight and type of load, Military Packages are governed by various conditions which vary with the nature of the contents, the method of packing, and the amount and kind of protection required as well as the distance the package is to be shipped, its ultimate destination—domestic or export, number and kind of transfers, type of transportation, method of handling, stowage or storage loading and exposure conditions.

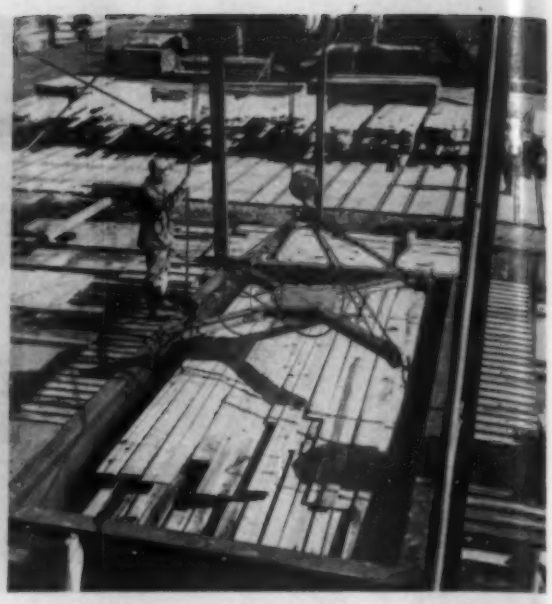
Military Package specifications may be thought to be too severe by many manufacturers who do not give proper consideration to the rough handling and rigorous conditions to which containers for military packaging are subjected. In a speech made at the AMA Packaging Show in Atlantic City, Col. John A. Way, USAF, Chief, Munitions Board Packaging Division, Office of Procurement Methods, Washington, D. C. said:

"Since we must plan for open storage, each box must be planned to act as a warehouse . . . a warehouse that must withstand the most severe earthquakes imaginable; that goes through rainstorms, tropical sun, freezing temperatures, and is ofttimes subject to dunking in salt water . . . We must design boxes to be handled by inexperienced workmen . . . to fit pallets, go through hatches, bound around in a ships hold on a rough sea, be lifted with slings and hooks, bounced, rolled and stacked again and again."

To obtain for the container manufacturer an authoritative opinion as to the most pertinent specifications and publications available for preliminary study of present military packaging uses of lumber, James A. Sargeant,

(Continued on Page 64)





C. D. Dosker, of Gamble Brothers, explains how this relatively simple treating set-up helps small mills eliminate stain without expensive handling. Process can be used by other Southern companies.

Here's How Small Mill Nips Stain in the Bud

"Prevention and control of stain, especially in southern hardwoods, has always been a problem. Climatic conditions are such that, especially in the spring and summer, the problem is a most serious one. If the small circle mill has end racks available, much strain can be prevented by skin drying and by racking. The larger mills are mechanically equipped to handle this problem, but most small mills have neither the manpower or the space to cope with it.". . . .C. D. Dosker.

"For a number of years, we have looked for various ways and means to prevent degrade caused by stain. It can be done by either end racking or sticking the lumber immediately upon receipt from the mill over a green chain and through the customary dipping or immersion procedure.

"We were faced with considerable difficulty in handling this problem at our Montgomery, Alabama plant. At this plant we purchase lumber green from the saw from many of the small circle mills in the surrounding territory. It is not economically feasible for these mills to install dipping equipment, nor is it feasible to separate the lumber by grade and species at the mill. Because of the varying quantities delivered by truck each day, it was not physically possible for us to break down and treat this lumber by the green chain method. Within twenty-four hours in warm and humid weather indications of stain were immediately apparent. This was particularly true of such woods as gum, poplar and other soft hardwoods and was complicated because of the fact that a truck load of 2,500 to 3,000 feet might contain three or four species with the full product of the log in each species. The nature of the problem can therefore be quickly understood.

"We needed a cheap and effective method of preventing stain. It naturally occurred to us that the most economical and fastest way would be to treat the whole package if possible. We knew that this same problem must have confronted others, especially producers of yellow pine.

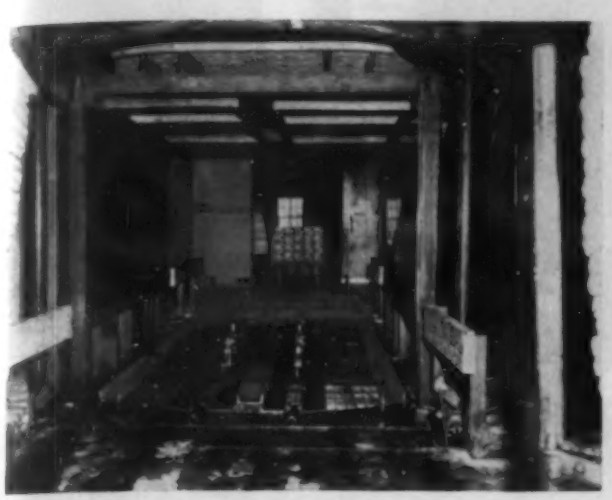
"We learned that Mr. May of the Southern Pine and Hardwood Lumber Company of Mobile, Alabama was dipping loads of yellow pine coming from small mills. We discussed the matter with Mr. May, who told us of the success he had had in this method of handling pine. He told us, however, that he had never tried the process on hardwoods.

"We began experimental work in 1949, putting up sample packages of lumber in which the packages had been dipped in bulk and stored in bulk. Companion packages of untreated lumber were stored under identical conditions. This was done in an effort to determine the duration of time that hardwoods could be satisfactorily stored. In addition to this, small packages were stored under conditions most likely to cause early development of infection. As a result of these tests, we were soon convinced of the effectiveness of the process, and when at the end of a ninety-day period there was practically no evidence of stain in the treated bundles, we proceeded with our plans for the dipping of unit truck loads of lumber green from the saw.

"The equipment cost was relatively inexpensive to purchase and install. The entire cost was approximately $5,000. It consists of an 18' x 19' x 5' deep steel tank, over which an I-beam trolley was installed with an electric hoist. The length of the I-beam trolley is sufficient to permit a truck to back under the electric hoist and to store or immediately dip the incoming lumber.

"The incoming loads are separated by 4 x 4's to permit the easy handling of the loads, as shown in the photo-

(Continued on Page 55)



1. MILLWORK PARTS are assembled for treating on factory trucks.

2. TANK IS CHARGED with either one or two loads. Top covers load.

3. WHEN VACUUM IS ESTABLISHED load is lowered into solution.

4. BOTTOM HALF OF TANK holds solution. Operation is automatic.

Fast, Controlled Lumber Treating with Vacuum

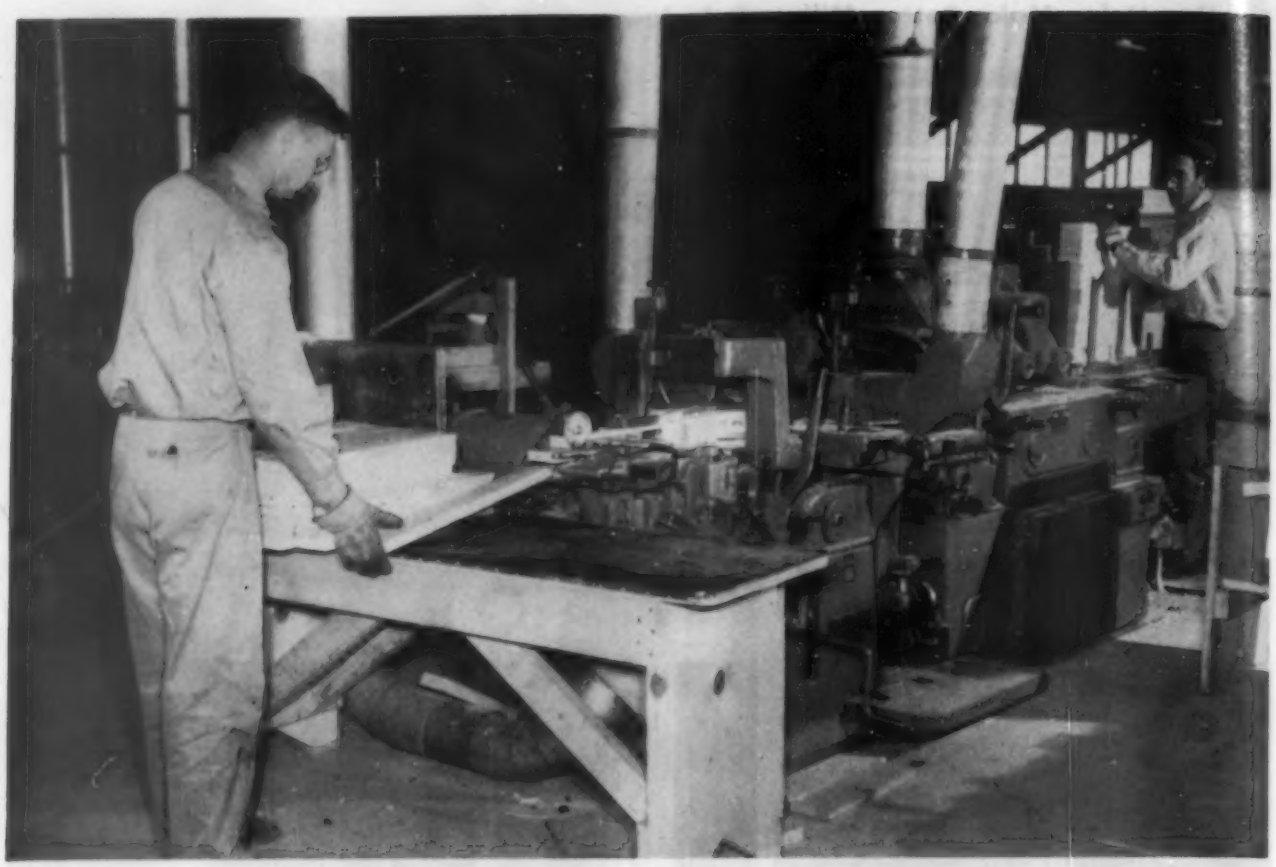
In line with millwork industry's continued drive to produce better products, Carr, Adams and Collier company, Dubuque, Iowa, has installed a new type wood treating unit which is engineered to be faster and more efficient. An added benefit is that treated loads come from the tank almost completely free of excess solution.

This new vacuum seal process assures better penetration and distribution of the solution in the wood, as well as more equalized penetration over a whole run. A high degree of dimensional stability and a high resistence to fungi and wood-destroying insects are obtained with the pentachlorophenol solutions used.

The vacuum sealer unit consists essentially of a two-section vertical treating vessel, millwork cage and the auxiliary units and controls for the automatic operation of the system. The upper portion of the treating vessel is automatically elevated for charging the wood into the vessel and an electric timer controls the pneumatically operated three-phase treating cycle of about three and one-half minutes duration. The equipment can also be manually operated, and be adapted to give other than standard treatments for special jobs.

In a normal sequence, the upper portion of the treating vessel is raised to permit charging of the material and lowered prior to drawing a vacuum which partially evacuates the wood cells. The cage is then submerged into a treating solution reservoir in the lower portion of the treating vessel below the floor level. Excess solution is removed quickly by a final vacuum applied after this cage is raised.

The first of the new units is operating at the Dubuque, Iowa plant of Carr, Adams and Collier Company, one of the nation's largest millwork manufacturers, which cooperated in the final development of the vacuum seal unit. Initial plant-runs have demonstrated that the unit eliminates time consuming operations and permits quicker glazing, painting and finishing of the treated wood.



Sharp Knives Mean More Production

by Paul Graham

PART III-This month Graham discusses the proper sharpening of cutterheads.

While the use of square cutterheads on jointers has been prohibited by law in most states, many planers in many plants still carry this type of head. Most modern jointers and planers, however, are now equipped with round heads. Heavy slotted knives are bolted onto the square cutterhead but thin solid knives are clamped into the slots of the round cutterhead by caps and throat pieces.

On many of the modern jointers and planers the knives do not have to be removed from the cutterhead, or the cutterhead from the machine, as these machines are equipped with electric motor-driven on-the-machine knife grinders and jointers. This is usually a light portable grinding device, consisting of a small motor that slides on a knife bar fastened to the cutterhead bearings which remains permanently on the machine and is aligned positively with the axis of the cutterhead shaft. The grinding head is moved back and forth across the knife edge by a feed screw, either automatically or hand-operated, while the cutterhead is locked in position to grind the knife with a pin.

This type of traveling grinder may usually be swiveled for grinding the required bevel and the grinding wheel is adjustable vertically by a micrometer screw. While the small diameter grinding wheel may weaken the knife edge a little by the concave ground in the clearance bevel, it is possible to reserve up to 0.02-inch heel to limit the amount of steel removed. In operation the grinder is fed slowly and evenly to take a uniform cut as each knife is ground back and forth over the entire length of the knife. The grinding wheel is usually kept true by clamping the dressing tool onto the knife bar and passing the wheel backward and forward in contact with it until the wheel is dressed true and even. This traveling-wheel grinder is also used for grinding knives on moulders or stickers equipped with a jointer slide.

A device for jointing the knives in the cutterhead is sometimes mounted on the knife bar, consisting of a jointing stone that can be fastened to the knife bar and moved progressively from side to side while the cutterhead is revolving. The jointing stone is applied lightly until all knives in the head are jointed evenly for uniform cutting. The jointing and grinding sequence at the planer depends upon the type of planer and kind of surfacing to be done. As a general rule finish planer knives used for final surface dressing are jointed first and then ground to the joint. Rough surfacing planers or facing planers which operate at fast feeds for rough surfacing and facings are usually ground first and then jointed. Many planers also use setting devices mounted on the knife bar to set the knives in the cutterhead before grinding.

On-the-machine grinders have not done away with standard grinding equipment, however, as many sharpening and grinding operations are

(Continued on Page 28)

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Sharp Knifes

(Continued from page 26)

best done away from the production machines by workmen specially skilled in grinding and sharpening. Straight knives on older and smaller machines that do not incorporate built-in grinding and jointing devices and thicker wood-cutting knives are regularly removed and ground on stationary grinders, usually some form of automatic grinding machine, which vary in size and operation to suit the type and length of knife to be ground.

These grinders usually incorporate a bed, column, knife bar and grinding wheel head as basic equipment. The grinding wheel carried by the column may be either a straight side or cup or ring-type wheel. The straight side wheel is mounted conventionally but the cup wheel may be mounted with the face toward the knife to produce a flat bevel, or with the convex edge toward the knife to produce a hollow or undercut bevel. The cup wheel is popular for knife grinding because it maintains constant speed at the point of contact but the straight wheel grinder seems to operate better on thin high speed knives to produce short bevels.

Preference for Grinding

Preference for wet or dry grinding seems to depend quite a bit upon the individual likes or dislikes of the knife maintenance department head. General practice, however, seems to indicate that wet grinding is best for grinding extra-long bevels on extra thick knives, as veneer, chipper and hog knives, and for all carbon steel knives, if used, but dry grinding is perfectly satisfactory for grinding conventional jointer, moulder, matcher, sticker and planer knives.

These grinders are available as dry grinding semi-automatic machines, or as wet or dry floor-mounted machines that are fully automatic so they may be operated without constant attention. The bed is usually fastened to the column and is further supported by auxiliary columns at each end on larger machines. On some grinders the knife bar remains stationary while the grinding head moves across its length on horizontal ways; on others, it is mounted on a carriage sliding back and forth on the bed. Where the amount of grinding to be done warrants its use, the electromagnetic chuck is used to eliminate the time required to fasten and unfasten the knives from the knife bar with bolts.

The feed mechanism is usually located inside the column to drive both the grinding wheel head and the knife carriage from one end of the bed to the other, with a reversing mechanism provided in the automatic grinders that may be set to travel any distance within the capacity of the machine and reverses automatically. Micrometer control is provided to the automatic cross-feed of some grinders to permit the use of special wheels for the grinding of carbide-tipped knives and the cross-feed may be preset to stop grinding at any point.

Wet Grinding

Wet grinding machines are also provided with a rotary pump which supplies a continuous flow of coolant onto the knife and returns it back to the tank by gravity flow. The larger machines are usually arranged to direct two streams of coolant at the contact point of the grinding wheel and knife edge. A new technique of wet grinding recently introduced features carrying the coolant through the grinding wheel, cooling each abrasive grain to cut faster, last longer, and producing a keen cutting edge on the cutting tool. There are many coolant solutions available commercially for wet grinding and plant-mixed sal soda solutions and soluble oil emulsions are also popularly used.

Cup wheel grinders are available in practically all knife lengths and are made in both automatic and semi-automatic machines, with or without coolant attachments. The chief advantage of this grinder is that the rim speed is always constant while the rim speed of the straight side wheel grinder lessens as the wheel wears down to require adequate means of adjusting wheel operating speeds to maintain a constant rim speed. Straight wheel automatic and semi-automatic grinders are available in a like range of knife sizes with similar equipment. This grinder normally produces the concave bevel required where knives are jointed and is much used for grinding thin knives with a special knife bar or a thin knife grinding attachment.

For Short Knives

Short knives used in wood-cutting machines for edge dressing, straight surfacing and glue jointing are usually ground in the cutterhead by standard cutterhead grinders which index accurately and grind true. All indexing is done from the knife being ground and the index finger is arranged exactly perpendicular against the surface of the bit to prevent any variation in indexing from side slip or slight movement of the index finger. Either the grinding head is arranged to slide across the knife edge at the proper angle or the cutterhead is mounted in a workholder on the carriage which moves the knife back and forth in contact with the stationary-mounted grinding wheel. These grinders are available in hand-operated, semi-automatic and automatic machines.

There is not nearly as much freehand grinding being done on formed cutters today because it has been found to be practically impossible to maintain pattern accuracy when the knives become dull, even when gauges are used. Formed cutters and multiple bit cutterheads require precision grinding and jointing equipment and many efficient formed cutter grinders and jointers have been developed to fit this need.

Formed knives used on moulders, matchers, stickers, shapers and tenoners generally fall into one of three classifications: ground-to-pattern knives used for short production runs or specialty work; milled-to-pattern knives for long production runs; and circular-bit cutterheads, usually single-purpose heads, used for long production runs with longer cutting life and equal advantages of milled-to-pattern knives.

Ground to Pattern

Ground-to-pattern knives are found in greatest abundance in those plants where the operators of such machines as the moulder or shaper are permitted to fit up their own cutterheads and perform their maintenance. These knives are usually made up from standard knife blanks and must be ground away from the head on the beveled edge to the required profile. Sharpening involves regrinding the profile, following and maintaining the original shape.

Whether ground freehand or on the profile grinder, ground-to-pattern knives usually require the use of both the round-nosed and flat-faced grinding wheels. The convex portions of the knife are usually ground on the flat-faced wheel. Internal curves are ground on the round-nosed wheel, with the round-nose carrying a radius almost equal to the curve required on the knife.

Read part IV of Paul Graham's interesting series on saw and knife care in the June issue of Wood and Wood Products.

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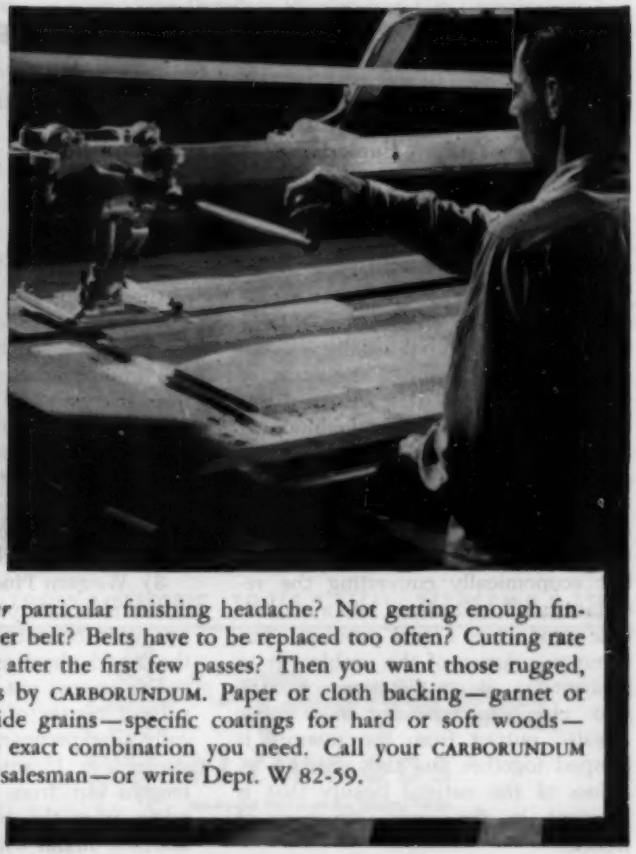

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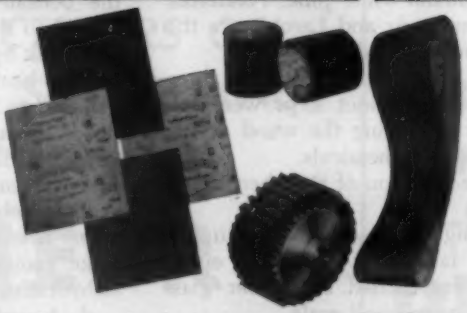

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Can Vapor Drying Make Small Clears More More Economical To Handle?

by D. L. Haynes
Pack River Lumber Company

In the wide field of research aimed at utilizing more of the tree, a large source of raw material usually is available at the sawmill in the form of slabs, edgings and trims. Most of this unused material is sapwood containing considerable footage of short length, straight grain, clear wood. Being able to remove this clear stock from the millrun at small cost is no challenge to the average lumber manufacturer, but economically converting the resultant small, wet pieces into a marketable product is a real problem. The common solution of the problem is to concentrate the utilization research into channels whereby the entire "waste" output from the sawmill is lumped together and this ends up by a loss of the natural beauty that is inherent in the grain structure of wood.

In line with the research policy of Pack River Lumber Company whereby all utilization research is directed toward making use of as much wood as possible in its natural form before reducing it to fiber or breaking it down into its chemical entities, considerable effort has been concentrated on the problem of economically converting these small pieces of clear green wood into a marketable product. These pieces must first be dried, but to dry them by the conventional dry kiln method would add a manufacturing cost that would price them out of a competitive field. Therefore, there is justification in spending considerable time and effort in seeking a rapid, economical way of drying these small wet pieces.

In 1947 the laboratory started to investigate the wood drying properties of various chemicals both in the liquid and vapor phase. During the earlier work, it was decided to eliminate one of the variables by concentrating only on chemical vapor drying. Several factors prompted this decision.

1) Since more resins were extracted from the wood by the liquid phase it was felt that more elaborate equipment would be necessary to keep the chemical clean for the removal of moisture from the wood.

2) More chemical would be needed for the process and

3) Western Pine Association had a rather elaborate pilot plant already in operation chemically drying wood by the liquid phase method.

For reasons not concerned with the subject matter of this paper, practically all experimenting was done with sticks 1" x 1" square and of various lengths cut from slabs and edgings taken from the burner chain of the sawmill. Idaho white pine, Ponderosa pine, Douglas fir and Larch were the species investigated.

In all investigations to date, three separate and distinct steps were followed in evaluating the wood drying abilities of the chemicals.

1. The selection of the chemical to be used.

2. Using it to dry wood in the chemical laboratory where the entire process was carried out under glass and on a very small scale.

3. If step two looked favorable then further investigation was carried out in the engineering laboratory where the process was repeated on a small pilot plant scale.

Although step one has some hit and miss aspects, it was not all done by groping in the dark. First, the chemical vapor must be able to remove the moisture from the wood. Second, it must not react chemically with the wood structure thereby changing its composition. Third, it must be separated easily from the moisture removed from the wood at the end of the drying period. Fourth, it must be safe to handle under normal safety precautions. Fifth, it must be removable easily and economically from the wood after the desirable moisture content of the wood has been reached. Sixth, it must be stable and seventh, it must be available in commercial quantities and economical in price.

The glass apparatus used in the chemical laboratory consisted of the following:

a. A 1000 ml three hole round bottom flask which is referred to as the evaporator. This was set on a rheostat controlled electric heater.

b. A vertical dehydrating chamber about six inches long and two inches in diameter fitted with a vapor line in the bottom which in turn was connected to the center hole of the three hole flask by a one hole stopper.

c. A heated vapor line to prevent condensate forming and running back down through the dehydrating chamber into the evaporator. This vapor line was connected to the top of the verticle dehydrating chamber through a one-hole stopper—the stopper being large enough to allow access to the dehydrating chamber for charging.

d. A vertical condenser which discharged into a water trap.

e. A water trap which was calibrated for reading the amount of water taken off and a side arm which allowed the return of the chemical to the evaporator where it was revaporized and recirculated until the desired amount of water was taken out of the wood.

A one-half gallon sample of the chemical to be tried was ample for the

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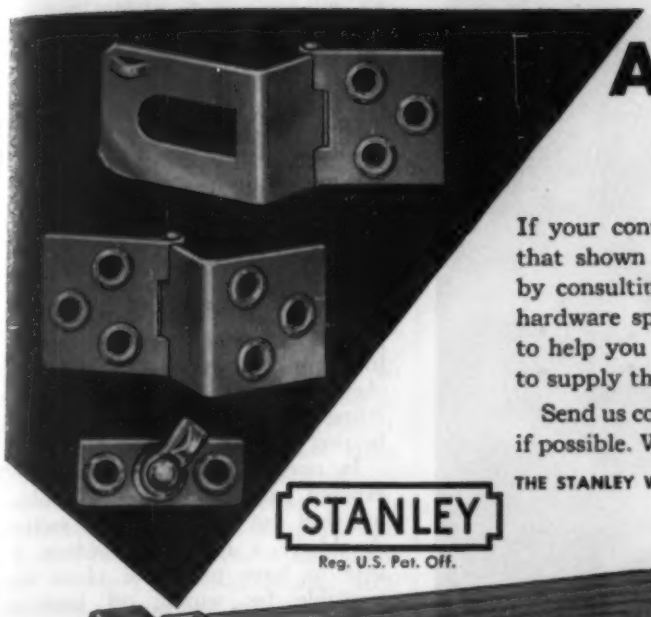

Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley. The largest manufacturer of hinges and hardware specialities, The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time.

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Keep Your Motors Running Better with Proper Care

Electric motor builders have done a remarkable job in perfecting the design of one of the most efficient machines known today. Motors will operate under more severe conditions, more frequently, than any other piece of mechanical equipment, and with a minimum of attention. However, systematic motor care and some understanding of the causes and cures of motor ailments are necessary if shutdowns are to be minimized and costly repair bills avoided. A schedule of preventive maintenance should be set up and carried out as regularly and thoroughly as circumstances will permit, whether the plant is small or large, and whether few or hundreds of motors are involved.

Although the basic causes of motor failure are simple, and obvious to even an inexperienced worker, maintaining the operation of electrical machines should not be considered a handyman job that anyone can do without previous experience or training. Plant personnel responsible for the continued operation of electrical equipment should acquaint themselves with the causes of equipment breakdowns and measures to be taken to combat such breakdowns.

(Note: This practical article on how to get the most from your electric motors was prepared by the Allis Chalmers Corp.

This article deals primarily with causes and cures of troubles experienced in alternating current machines, but all types of motors and generators have many elements in common for which maintenance work is fairly uniform. Insulated windings, brushes, collector rings, and bearings, vary little moisture, fumes, etc. Dirt can abrade with motor types, and similar problems will be experienced. In the following paragraphs the "natural enemies" of an electric motor, the real causes of motor trouble, will be outlined, with suggested steps to be taken to combat these "natural enemies".

DIRT AND DUST are encountered in most motor installations. Dirt can be defined as matter out of place, and whatever its composition, it can be deadly to an electric motor. It is a silent saboteur that will invade motor windings, interfering with heat radiation and causing dangerous temperature rises, and hasten deterioration of insulation. It can interfere with ventilation by plugging vent spaces, and soak up harmful oil, moisture, fumes, etc. Dirt can abrade slip ring surfaces, multiplying wear and blocking full passage of current. Inside bearings, it can be as harmful as sandpaper to highly polished surfaces.

Dirt and dust are most easily combatted before they have a chance to unite with oil or moisture in a gummy, hard-to-remove mess. To keep dirt out of bearings, oil filler caps should be properly fitted and closed. Dust seals and gaskets should be kept in good condition, and replaced if they are worn or rotted. In totally-enclosed motors, a periodic check should be made to assure tight fitting joints in the motor frame and bearing seals.

In open type motors, wiping off exposed parts and occasionally blowing dust out of the wound section, should be a regular procedure. Be sure to have plenty of clean rags available for wiping off housings, cleaning slip-rings, or removing dust from other accessible surfaces. One word of caution—do not use waste. It contains lint that will adhere to surfaces it contacts.

Clean, dry, compressed air, free of grit, metal or moisture, is generally recommended for blowing out electrical machines. The pressure used for a specific job should be no more than is necessary for removal of dust and dirt without damage to the winding and insulation. Be careful not to direct the blast of compressed air in such a way as to loosen insulation, of force abrasive or conductive particles into inaccessible places. Air suction is sometimes more desirable, especially if nearby operations could be impaired by the displacement of dirt in the motor. A vacuum cleaner can be used for this purpose.

STRAY OIL is a close ally of dust and dirt in creating trouble for motors. Together they can form a gummy, sticky mess on motor surfaces. Without oil or grease to lubricate vital bearings, motors cannot operate, but this oil must be kept where it belongs, acting as the "lifeblood" of the motor. Otherwise, it is strictly poison in its effect on motor life.

Oil can seriously affect the insulation of motor windings. Should a winding become thoroughly oil-soaked, the motor will be in immediate danger of a burn-out or breakdown. No amount of wiping or cleaning can remedy such a situation. The soaked coils will probably have to be rewound. In any case, oil and grease should be kept away from windings, for they will, in time, soften and weaken the insulation. In combination with dust, oil becomes a

(Continued on page 33)

serious menace to winding life. Ventilation is smothered, and insulation is under constant attack from the oil and the excessive temperatures resulting from restricted cooling.

The fight against stray oil begins with keeping a motor's lubricating oil where it belongs. Check oil seals, well covers and plugs frequently to see that they are tight. Never lubricate ring-oiled sleeve bearings when the motor is running, because overfilling and escape of oil will probably result.

Grimy or greasy accumulations on motor windings should be removed with the aid of a cleaning agent. Non-inflammable solvents are safest to use, but pure carbon-tetrachloride is not recommended because of its deteriorating effect on varnishes and its harmful toxic effects. A solution of 60% carbon tetrachloride and 40% naphtha or lead-free gasoline is more satisfactory. However, the solution should be applied sparingly, and never be sprayed or poured on the coils. An excess can be as dangerous to insulation as oil and grease. And remember, adequate ventilation must be provided wherever carbon tetrachloride is used.

Moisture is another enemy of motor life. Excessive moisture may cause a failure in insulation which is otherwise in good condition. Electrical machines should always be protected against falling water, and the condensation of moisture on motor surfaces should be prevented by maintaining the temperature of the machine well above the dewpoint. If moisture does get into a machine, every effort should be made to dislodge it as quickly as possible. It takes time for moisture to soak and soften insulation, and it may be possible to remove it before the damage is done. In addition, water has the ability to absorb harmful compounds and become an active agent of destruction, and the more quickly it is removed, the less opportunity it has to exercise this capability.

Precautions against moisture are simple enough. Motor manufacturers have developed designs with varying degrees of enclosure—dripproof, splashproof, totally enclosed, etc., but all motors should be guarded against the accidental entry of water from drip and splatter. Running standby motors a little, at least once a week, can help to guard against moisture condensation during idle periods. Electric space heaters, mounted either below or within the machine, can be utilized

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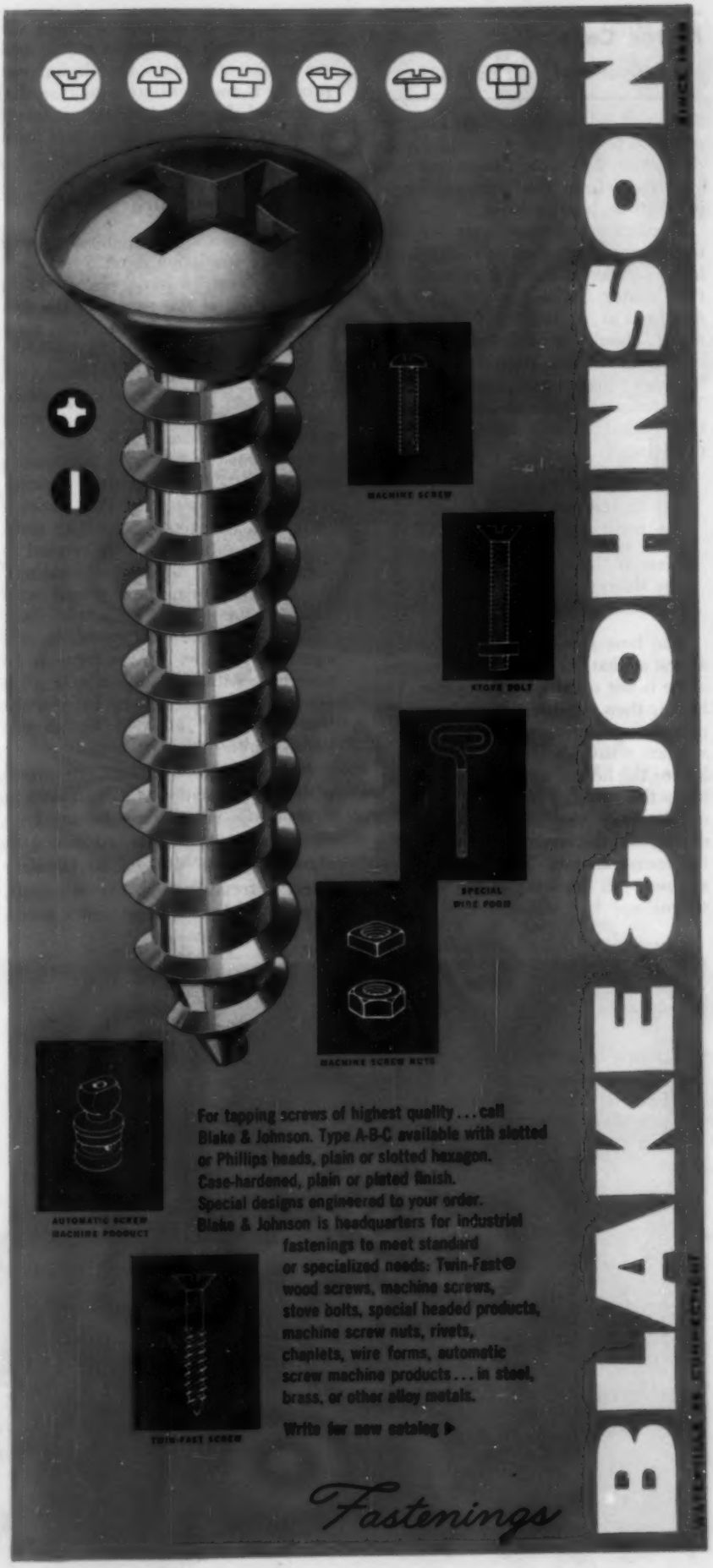
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Fastenings

Motor Care

(Continued from Page 33)

during shutdown periods to keep the machine temperature safely above the dew point, and protect the motor most effectively from the condensation of moisture on interior parts.

Insulation resistance tests are used to determine whether or not moisture has produced a harmful condition in the motor. When resistance has dropped to a dangerous point, the motor should be dried out by the application of heat until the resistance becomes constant and sufficiently high. The temperatures maintained during this period should not exceed the following:

Class A Insulation—	
by thermometer	75°C
by resistance or detector	85°C
Class B Insulation—	
by thermometer	85°C
by resistance or detector	95°C

The heat should be applied slowly at first so that the final desired temperature is not obtained too rapidly. The heat is then regulated to maintain the proper uniform temperature. The insulation resistance should be measured before the heat is applied, and periodically thereafter. The interval between checks may vary with the rate of drying and the convenience of making the measurements. The insulation resistance will decrease as the machine warms up, but will increase as the dry out process continues. When the readings reach a common value, and are sufficiently high, the drying out process is complete, and may be discontinued. In order to obtain constant readings, a uniform temperature must be maintained in the machine.

Removing Moisture

Various methods of removing moisture from insulation have been used: external heat, internal heat, or a combination of the two. For the first most practical medium. Too tight enclosures or covers are undesirable, as ventilation is required to remove the moisture-laden air. Electric or steam heat, with some form of temperature control, can be used safely.

Other measures for the application of external heat can be used, depending on circumstances. A fan, blowing heat from hot elements such as resistors, steam pipes, etc., can be used to direct heat into the motor windings. Or the motor can be covered with non-inflammable materials, and heat directed to it through ducts. In still another variation, the motor can be covered with a tarpaulin—leaving vents at top and bottom for circulation—and heat provided by electric light or infra-red heat lamps.

Internal heating is more often used with larger machines where an oven or enclosure is impractical. In any type of ac machine, an external source of current can be utilized to circulate direct current through the windings. A portable low voltage motor-generator set, such as is used for welding, is suitable. Stator phases may be connected in series or in parallel to suit the available power supply if both ends of all phases are accessible. If only three leads are brought out of the machine, the current may be circulated between one terminal and the other two connected together. The temperature of the single lead connection must be checked frequently, and it is desirable to shift the leads occasionally.

Alternating current can be used on the stators of synchronous and squirrel cage induction motors if the rotors are removed. Wound rotor induction motors may be dried out on alternating current with the rotor in the stator, blocked to prevent rotation, and the collector rings short-circuited. However, alternating current is usually not as easy to use as direct current. It is often more difficult to obtain the required voltage control, and ac requires a higher voltage source. In addition, care must be taken that parts adjacent to the winding, such as rotor bands, lead studs, core supporting members, etc., do not overheat due to induced currents and the lack of normal ventilation.

The brushes must never be used for circulating current in the rotor of any type of machine when the rotor is stationary. The leads should be firmly clamped to the collector rings.

Whatever method is used, care should be taken that the drying is accomplished without damage to the insulation. When dry, the resistance of the motor to moisture can be renewed by applying a good grade of insulation varnish. REMEMBER, for continuous, uninterrupted service it is essential to keep motors dry by preventing or removing accumulated moisture.

FRICTION is a mechanical problem, familiar to machine operators everywhere, and precautionary measures to combat it are easily understood. The key to anti-friction maintenance, logically enough, is proper lubrication. Overloaded, or mistreated bearings can deteriorate in a matter of seconds. The oil film protecting a bearing from wear is often microscopically thin, no thicker than the wall of a soap bubble, and if the pressure on this film becomes too great, this film can fail as suddenly and completely as a bursting bubble, resulting in metal-to-metal scraping and bearing failure.

Theoretically, no wear can take place within a bearing if the surfaces

(Continued on Page 54)

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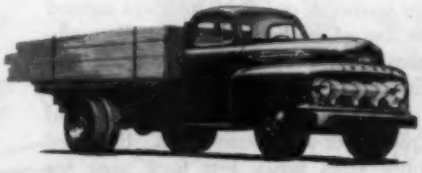

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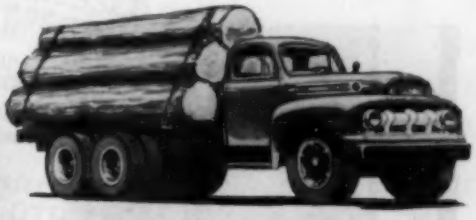

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SHOP FABRICATED units like these cut building costs—but they are also designed to replace at least part of the portable storage space in the modern, small bedroom.

Built-In Storage Space—A New Challenge

Builders are turning to the built-in idea to save space and add sales appeal. What does it mean to various parts of the wood industry.

The wood and wood products industry has made wide gains and improvements in many fields in the past few years. Now high costs and competition seem on the verge of dictating further advancements. The spotlight is now being turned on storage space in the bedroom and other areas of the house.

JOE ENTRESS finds built-in storage has sales appeal.

At the annual convention of the National Association of Home Builders, held in Chicago in January, one of the major trends which builders picked as of vital interest is the sharply increased use of built-in storage space. A panel of builders agreed the use of built-in storage will mushroom both because it cuts costs and adds sales appeal.

High building costs have forced down over-all house sizes. Reduced house sizes mean less floor area for movable storage, eg., furniture. Such a development leads to provocative questions. If the builder tends to answer the storage problem by providing "built-in" storage, how will the sales of furniture storage be affected? Can the furniture industry channel prefinished parts to the builder which the builder will incorporate in the house? Will the smaller "scaled to room size" furniture be the answer?

The furniture industry—through some of its members—have so far faced up to the problem of the "built-in storage—reduced room for furniture" problem by creating furniture scaled to smaller room area and designed to be unobsrusive by incorporating "look-through" qualities. But "scaled down sizes" mean less actual storage area—and hence may tempt the builder to incorporate—for sales appeal reasons—even more built-in storage space.

Typical of the progressive house builder in 1952 is Joe Entress, of Rochester, N. Y.

Entress prefabricates in his shop a complete storage unit which serves both as clothes closets for two bedrooms and linen closet for the hall, and also provides drawer space. These pre-assembled units serve as the wall.

Other builders in various parts of the country are going still further, supplying built-in vanity tables with dresser storage space on either side.

So far, builders are using "lumber yard" lumber to build these storage units: in other words, common and upper grades of boards.

Who is going to supply the storage in the small house of tomorrow—the furniture man or the builder?

Will this use of boards continue? Will the furniture industry find ways to supply built-ins which the builder can incorporate in the house?

Wood and Wood Products magazine believes the above questions—and the answers to them—will become increasingly important to many segments of the wood industry. We would be interested in our readers' reactions and experience.

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Methods of Testing Adhesion to Wood

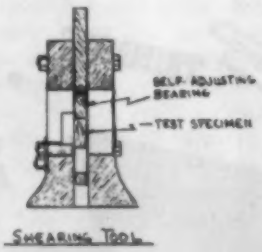
In Brief . . . . .

"Current standard methods for testing the bond in laminated wood and in plywood, and their limitations are discussed. The cycling test consisting of alternately soaking and drying a plywood test specimen is described, as are peel tests for flexible materials bonded to wood, and methods of testing the bond of sheet metal to wood. The cleavage test as a means to simulate service conditions is compared with the shear test, and it is pointed out that this test lends itself to investigating the effect of continuous loading and elevated temperatures on bond strength. A simple torsion shear test, and a device for determining resistance of glued joints to repeated or vibration stresses are described"—Armin Elmendorf

The availability of new adhesives to the wood-working industries in recent years has opened up new avenues of usefulness of wood products. It has made possible the bonding of veneer to veneer in the manufacture of plywood which will withstand continuous exposure to the weather, and bonding of metal to wood which will withstand the vibration of trains and trucks. With each new use has come the necessity of a test which will determine the suitability of the bond for withstanding the adverse conditions to which the product may be subjected in service.

In order to be satisfactory, the bond must not fail under any stresses or unusual temperature or moisture conditions to which it may be subjected in practice. Tests have therefore been devised by industry which may be used to measure the suitablity of the bond to meet service conditions. The present paper has for its purpose to analyze some of these tests and to point out their advantages and limitations.

When devising a test for measuring the ability of a bond to withstand service conditions, the technician must note whether the members that are bonded together have the grain in the same direction or at right angles, whether the stresses to which the bond is subjected are shear stresses or cleavage stresses, whether the moisture of the wood may depart considerably from the equilibrium moisture of normal use, whether the stresses are continuous or rapidly repeated as in vibration or applied suddenly as in shock, and whether temperature changes must be considered as in the case of metal bonded to wood where there is a marked difference of the coefficient of expansion of the two materials bonded together. The test may be used in the shop as a control test governing manufacture, or it may be a test upon which the purchase of the product may be based. Shop tests may be purely qualitative without registration of any numerical data, as when a foreman splits the edge of a piece of plywood with a pocket knife and notes the extent to which failure takes place in the wood rather than in the adhesive. Specification testing, on the other hand, always involves measurements that can be recorded numerically. Testing a bond to find out whether it "meets the specifications", assumes that standards of quality have been established and accepted both by the manufacturer or an association of which he is a part and the purchaser of the product he makes. Detailed specifications have been set up by the Federal Government or the Armed Forces in collaboration with industry to determine the acceptability of plywood that goes into aircraft, ships, homes, and boxes, but standards governing the quality of the bond of metal to wood in the case of metal covered plywood remain to be formulated. While several methods of testing the latter have been proposed and are in limited use, no single method has as yet been broadly adopted.



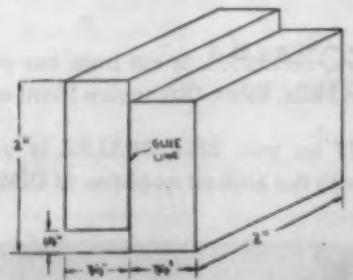


Fig. 1—Glue Block Shear Test

Armin Elmendorf

Debate has been going on for years among manufacturers of plywood and the major users of this product as to whether the greatest emphasis should be placed upon the strength of the bond or upon the extent to which failure takes place in the wood, also whether repeated soaking in water at room temperature and then drying is not a superior test to boiling in water for a relatively short time.

Fig. 1 shows the apparatus or tool generally used for determining the strength of bond obtained with adhesives used for laminating wood. It is customary to use maple wood for the blocks on account of the high shear strength of maple. Woods of lower strength are liable to result in failure within the wood and they may therefore not register differences in strength of adhesives that are known to have different strengths.

The test specimen consists of two laminations each ¾ inch thick glued together with the glue under test. Care is exercised to make two loading surfaces parallel to each other and perpendicular to the height so that the specimen will not be loaded eccentrically. The load is applied thru a self-aligning seat to insure uniform distribution. The shear stress at failure

(Continued on page 40)

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Glue Testing

(Continued from page 38)

based upon the overlapping area between the two laminations, and the percentage of wood failure are recorded.

While the glue-block shear test has long been a thoroughly developed means for comparing the strength of bond of adhesives when wood members are laminated, there is some doubt as to whether it simulates the stresses actually induced in most glued joints found in practice. Are not most wood members that are glued together placed cross-wise, and that being the case, are the stresses due to shrinkage of the wood not largely cleavage stresses? Except for the stresses at the ends of an adhesive layer near the midplane of a laminated beam, are there many instances in which the stresses resulting from external forces on a glued up member are primarily shear stresses? It may of course be contended that high shear strength in a glue line is generally also an indication of high cleavage strength. Insofar as this is the case the glue block shear test is a reliable test. In any case it is a simple test and the layman as well as the technician understands it.

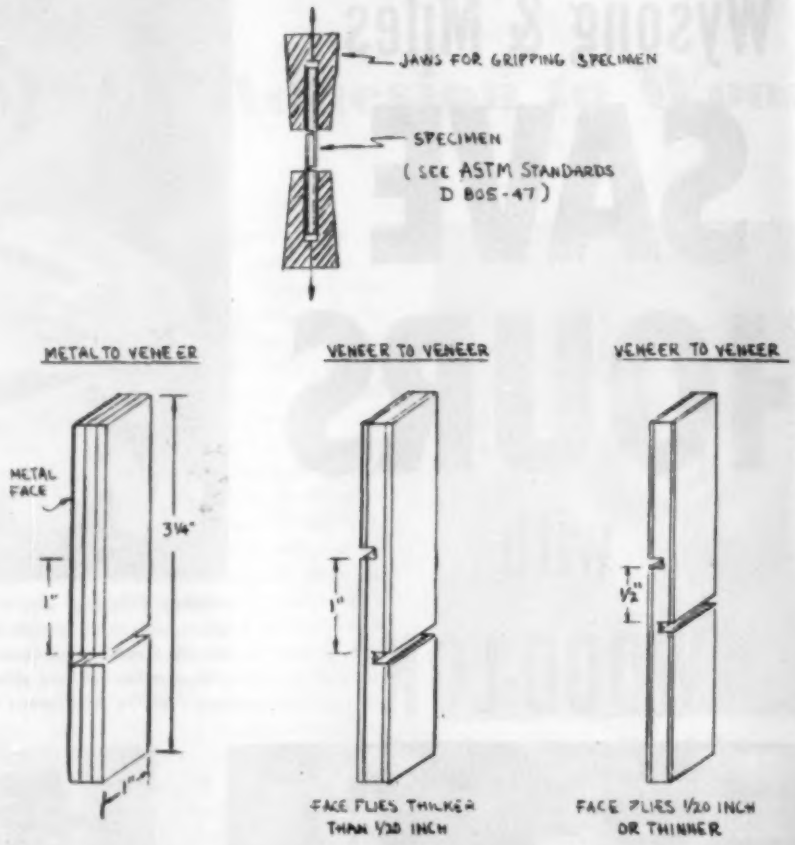

Fig. 2: Plywood glue shear test.

Fig. 2 shows the conventional method of pulling a notched plywood specimen to determine the so-called shear strength of plywood. The test specimen is 1-inch wide and the notches are spaced so that the area subjected to shear is 1-square inch, unless the thickness of the veneer is 1/20-inch or less when it is reduced to ½ square inch. This test was developed during World War I when a method for determining the bond in plywood used in aircraft construction was desired, and the device for testing cement mortar in tension was found to be adaptable to pulling notched strips of plywood to failure. The limitations of this method of testing plywood are generally recognized but the use of the test has nevertheless expanded until it now occupies the first place as a means of determining strength of bond. When tested dry the moisture of the specimen is from 8 to 12%. Specimens may also be tested after soaking in water for 24 hours or after boiling for several hours. Specifications stipulating the dry and wet strength of plywood of various species for various uses have been promulgated by the Federal Government as well as by the manufacturers of plywood in collaboration with Government agencies.

The plywood glue shear test is also used for determining the strength of bond of metal to plywood but the thickness of the metal affects the results obtained. Tin metal or soft metal bends more at the notch so that stresses on the glue line are partly peeling stresses and partly shear. The same is true, altho to a lesser degree, in the case of plywood where the stresses on the glue line are not true shear stresses either.

In drafting the requirements of a satisfactory strength of bond, specifications call for the percentage of wood failure in the test specimen as well as the load sustained. Some advocates of the test maintain that a large percentage of wood failure is sufficient to determine the acceptability of the plywood, contending that greater strength than the internal strength of the wood is not necessary in plywood. A specification based upon the wood failure alone would obviously tempt the manufacturer to use that wood in the core which would result in greatest percentage of wood failure. Woods that are weak across the grain are also relatively weak parallel to the grain, hence the plywood made of them would be weaker than plywood made of higher density species. In order to exercise control the purchaser would therefore have to specify species.

The test used by the hardwood plywood manufacturers for determining the resistance of plywood to alternate soaking and drying is described in their Hardwood Plywood Commercial Standard CS 35-49. In this test plywood test specimens are submerged in water at room temperature for 48 hours and then dried for 8 hours. This is followed by two cycles of soaking for 16 hours, and drying for 8 hours. The specimens are then again soaked for a period of 16 hours, whereupon they are tested, while wet, in a shear testing machine. Minimum shear values are stipulated and the specimens must show no separation at the glue line.

In the cycling test for waterproof hardwood plywood the specimens are boiled in water for 4 hours and then dried for 20 hours. After a second boiling for 4 hours they are cooled in water and tested while wet. There must be no separation at the glue line.

In another cycling test for hardwood plywood a specimen 6 x 6 inches in size is submerged in water for 4 hours, and then dried at room temperature for 20 hours. After repeating this test one time the specimen must show no visible delamination between any two layers more than 2 inches in length and over ⅛ inch in depth at any point.

(Continued in June issue)

Vapor Drying

(Continued from page 30)

chemical laboratory investigation. If it indicated promise in the chemical laboratory, then a 55 gallon drum of the material was obtained for the engineering laboratory and the pilot plant.

Inasmuch as the type of stock dried was only 1" by 1" and a maximum of 4 feet long, the size of the pilot plant was surprisingly small.

The combined evaporator and dehydrating chamber was made from a domestic hot water tank. The bottom or evaporator section of the tank was equipped with two 1500 watt electric immersion heaters which received power through a meter and rheostat for measuring and controlling heat input. This section also had a gauge glass for liquid level control in the evaporator. For charging the evaporator or making up any loss that might have occurred, the 55 gallon drum of chemical was connected by a ½" line through a valve to the evaporator where the chemical was admitted by gravity.

The dehydrating chamber had a perforated bottom which separated it from the evaporator section. The top of the dehydrating chamber was equipped with a flange connection for admittance to the chamber. A three inch vapor line ran from the top of the dehydrating chamber to the coil-in-box condenser. The coil-in-box condenser was made from an iron pipe coil placed in a 55 gallon drum. The latter was connected to the city water supply by a ½" line and the top outlet provided overflow into the sewer.

The bottom coil emptied into a separator tank which was equipped with a gauge glass for observing the water-chemical liquid level in the tank. The top of the tank was connected to the evaporator through a liquid leg and both the dehydrating chamber and separator tank had pressure relief valves so that all non-condensable gases could be drawn off at the start of each run thereby allowing the drying process to continue at zero pounds per square inch gauge pressure.

Both the glass apparatus and the pilot plant had thermometers in the evaporator and the vapor line.

In investigating a new chemical for its wood-drying characteristics, sticks were cut into ¼" rectangular pieces about 5" long and gently dried in the drying oven to constant weight. They were then soaked in distilled water overnight, sponged off and again weighed. The difference in weight being the amount of water absorbed by the sticks.

They were immediately placed in the dehydrating chamber and the heat turned on in the evaporator which had been charged with the chemical under investigation. Once the apparatus reached the desired temperature, the heat in-put was adjusted for the rate of evaporation. Knowing the exact amount of water in the sticks at the start, and observing the amount of water taken off in the water trap, the percentage of moisture in the sticks at any time was calculated easily.

With the aid of a stopwatch, the following information was obtained for all chemicals and wood investigated:

1. The speed or rate of drying for several different amounts of heat in-put.
2. The temperature of the chemical in the evaporator at any time during the drying cycle.
3. The temperature of the vapor coming from the dehydrating chamber at any time during the drying cycle.
4. The amount of moisture in the sticks at any time during the drying cycle.
5. The relationship between the

(Continued on page 53)

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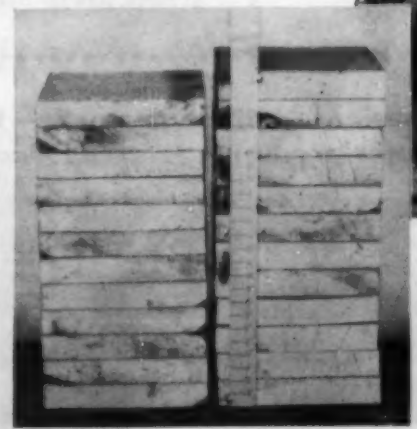
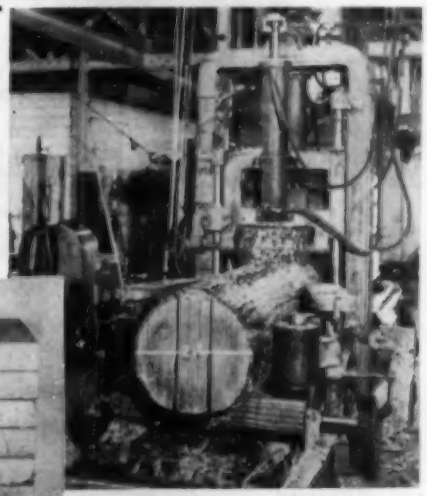


The greater accuracy and precision of Mill Engineering & Supply Co. Gang Mills enable you to saw scant, utilize smaller logs and cants and increase your yield up to 30%. The picture at the right illustrates how you can save lumber by sawing scant—and gain an extra 2 x 12 for every twelve boards cut.

Write us today for complete information on how you can increase your yield and production with one of our Gang Mills.



Mill Engineering & Supply Co. manufacture the *only complete* line of Gang Saws in America and each model has received world wide recognition. There is a model to fit your operation . . . either semi-portable or for the largest installations the big SUPER GANG.

Specifications and Engineering data readily available.

MILL ENGINEERING & SUPPLY CO.

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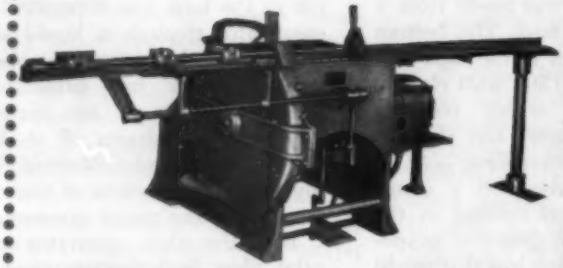
Sales Representative EARLE HART WOODWORKING MACHINE CO. 565 WEST WASHINGTON BLVD., Chicago 6, Ill.

Mereen-Johnson MACHINES

No. 441 GANG RIP SAW. For fast production on the most difficult gang ripping jobs. Six power driven feed rolls . . . 12″ or 19″ saw space . . . up to 125 HP . . . variable feed drive up to 300 ft. per minute. *Ask for Bulletin No. 441.*



No. 477 CUT-OFF SAW. Capacity equals two or three swing, straight line or roller carriage cut-off saws—depending on the type and condition of the stock. Excellent for box work. *Ask for Bulletin No. 477.*

VENEER JOINTER

Traveling head principle eliminates shifting. No chain feed—no "stock wobble". Perfectly joints bundles of veneer up to four inches thick. Sizes from 90″ to 212″. *Ask for the Jointer Bulletin.*

VENEER SPLICER. Makes precision tapeless joints. Adjusts itself automatically for varying thickness of veneer normally encountered. Welded steel frame with 49″ throat clearance at right. *Ask for Bulletin No. 50.*

The experience—the equipment—the manpower for producing *Precision Machines.*

Mereen-Johnson MACHINE COMPANY

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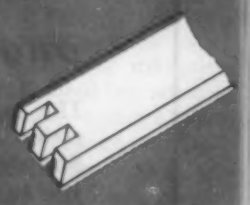
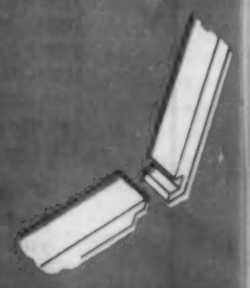
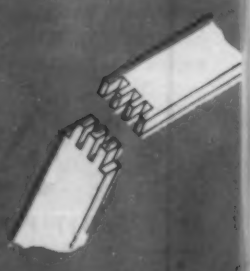
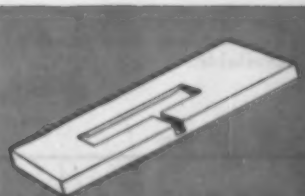
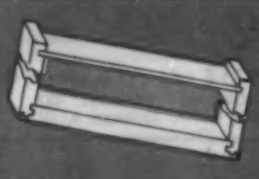
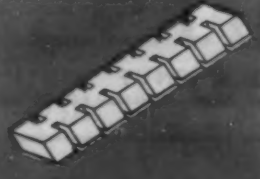




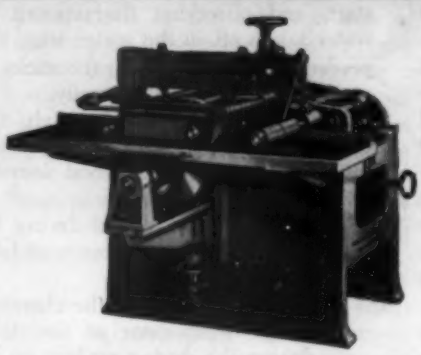








Mereen-Johnson MACHINES



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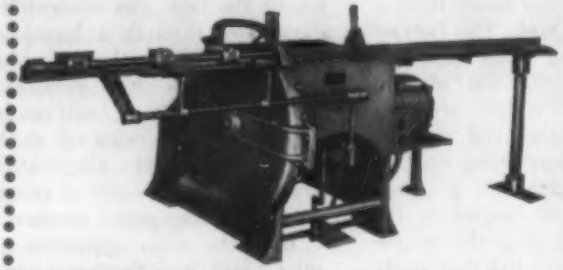

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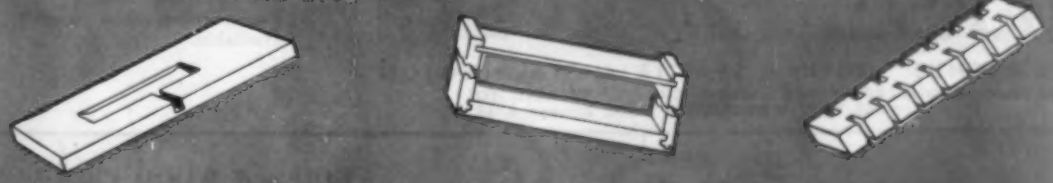

Headquarters, Hotel Schroder

Advance Program, June Meeting

A Quick Look at 48 Papers Scheduled in the Tentative Program of the Forest Products Research Society 6th Annual Meeting at Milwaukee, Wisconsin, June 23, 24, 25.

SESSION I—Monday a.m., June 23—FOREST PRODUCTS RESEARCH, chairman—George M. Hunt, consultant, Madison, Wis.

"Research and Future of the Millwork Industry," Earle Racey, American Wood Window Institute, Dallas, Texas.

"Possibilities of Forest Products Research in Home Prefabrication," Harry H. Steidle, Prefabricated Home Mfrs.' Institute, Washington, D. C.

"Utilization—Keystone of Intensive Forest Management," Lyle F. Watts, Forest Service, U.S.D.A., Washington, D. C.

SESSION II—Monday p.m., June 23—LUMBER HANDLING, chairman, Clark C. Heritage, director of development, Wyerhaeuser Timber Co., Tacoma, Wash.

"Looking Ahead in Package Handling of Lumber," James E. Stewart, Stewart Lumber Co., Minneapolis, Minn.

"Packaging and Handling of Lumber, Dimension and Hardwood Flooring Plant," Richard M. Conner, Conner Lumber & Land Co., Laona, Wis.

"Never Lift a Board," Walton R. Smith, Walton Lumber Co., Mebane, N. C.

(Continued on page 48)

"Materials For Forest Products Industries", Theme of York, Pa. Meet, May 22, 23

According to Charles Lockard, acting chairman, FPRS Northeast Section, and Frank Parrish, program chairman, plans are set for an outstanding spring meeting at the Yorktown hotel, York, Pa., May 22 and 23. Registration opens the evening of the 21st.

May 22, a.m. "Wood abrasives, new developments and applications," K. E. Oathout, Behr-Manning Co. "Quality Wood Supplies," J. E. McGuire, N. E. Forest Experiment Station. Additional papers on "Wood in Construction."

Luncheon, guest speaker, P. H. Glatfelter, president, P. H. Glatfelter Co., widely known conservation leader.

May 22, p.m. Four elective plant tours to furniture, pulp and paper, and cabinet plants in cooperation with York County Furniture Manufacturers Assn.

Evening, "Whys and wherefores of Gluing." Four experts on animal, casein, phenols, and ureas, with Tom Perry, chairman.

May 23, a.m. "Plastic surfaces," V. H. Vidal, Plastilight Co. "High Pressure Lamination," R. W. Barber, St. Regis Paper Co., "Modified Woods," E. G. Locke, Forest Products Laboratory.

May 23, p.m. "Materials Conservation," Dr. Hugo Kraemer, N.P.A. Popular technical group discussions led by experts in fields of finishes, specialty products, plastics, conveyor handling systems, saw milling and logging, air and kiln drying, and others.

Added features of the meeting include table top exhibits, Annual Business Meeting and election of officers. Advance registration, members $5.00.

Stan Gebarski, Allis-Chalmers, Casper Strong, Bakelite Corp. and Al Monroe, Milwaukee Assn. Commerce discuss entertainment.

Forrest Beil, Curtis Co., and Joe Paul, Phenix Mfg. go over transportation details.

Dick Brown, Rockwell Mfg., Alexander Stuart, John Widdicomb Co. and Bill Barta discuss publicity.

F.P.R.S. Section

(Continued from page 47)

"Modern Handling in a Retail Lumber Yard," T. Merritt Ludwig, Merritt Lumber Yards Inc., Reading, Pa.
"The Navy Conserves by Cutting Costs," Lt. Cdr. Thos. J. Anketell, Jr. Dept. of Navy, Washington, D. C.

SESSION III–Monday p.m., June 23–FIBERBOARD AND CHEMICAL UTILIZATION, chairman–Dr. Edward G. Locke, chief, division of derived products, Forest Products Laboratory, Madison, Wis.

"Utilization and Wood Waste in Hydrolysis with Dilute Sulfuric Acid," Nathan Gilbert, I. A. Hobbs, and W. D. Sandberg, TVA, Wilson Dam, Alabama.
Status of Research in Chemical Utilization of Wood Waste," J. F. Saeman, Forest Products Laboratory, Madison, Wis.
"Organization of National Technical Task Committee on Industrial Wastes," L. F. Warrick, U. S. Public Health Service.
"Pollution from Pulping Processes," Harry W. Gehm, National Council for Stream Improvement, New York, N. Y.
"Wood Waste Core Material for High Pressure Laminates," J. D. Cochrane Jr., Formica Co., Cincinnati, O.
"Investigation of Physical and Mechanical Properties of Wood Waste Board," A. J. O'Neill and Albert G. H. Dietz, Mass. Inst. Tech., Cambridge, Mass.

SESSION IV–Tuesday, a.m., June 24–FURNITURE MANUFACTURING, chairman–R. G. Lenox, production manager, Williams Furniture Corp., Sumter, S. C.
"Lumber Unloading Facilities," J. F. Sechrist, Red Lion Cabinet Co.
"Kiln Drying and Moisture Control in a Furniture Factory," S. D. Pryce, John Widdicomb Co., Grand Rapids, Mich.
"Gluing Control in a Furniture Factory," F. T. Parrish, Heywood-Wakefield Co.
"New Developments in Plastic Wood Laminates," G. E. Power, Formica Co.
"What MTM Can Do for the Woodworking Industry," D. G. Stohlman, Serge A. Birn Associates, Louisville, Ky.

SESSION V–Tuesday a.m., June 24–BARKING, chairman–D. A. Philbrook, Northeast Pulpwood Research Center, Gorham, N. H.
"Portable Barking Equipment," E. W. Fobes, Forest Products Laboratory, Madison, Wis.
"Hydraulic Barking," Sydney Hansel, Hansel Engrg. Co., Vancouver, B. C.
"Hydraulic Barking in a Neutral Sulfite Semi-Chemical Paper Mill," J. L. Ham, American Box Board Co. Filer City, Mich.
"Use and Selection of Hydraulic Barkers on the West Coast," J. S. Abel, Wyerhaeuser Timber Co., Tacoma, Wash.
"The Operation of a New Stationary and Portable Barker," Gus Jacobson, Soderhamn Machine Co. Talladega, Ala.

SESSION VI–Tuesday p.m., June 24–FURNITURE FINISHING, chairman–C. S. Powell, R-Way Furniture Co., Sheboygan, Wis.
"Surface Checking in Furniture Panels," R. A. Holcombe, Timber Engrg. Co.
"Finishing of Wood Kitchen Units," D. K. Lutes, Sherwin-Williams Co. Chicago, Ill.
"New Developments in the Use of Synthetic Resins in Furniture Finishing," W. S. Robertson, E. I. DuPont de Nemours, presented by K. M. Rogers.
"Hot Lacquer Systems," J. A. Bede, Bede Products, Inc., Cleveland, O.
"Wood Finishing with Hot Spray Lacquer," R. F. Wint, Hercules Powder Co.

(Continued on page 50)

Unique 2-tier table with FORMICA wood grain limed oak top by PANEL PRODUCTS must withstand all degrees of temperature.

Modern machine gluer in PANEL PRODUCTS' new plant where skilled craftsmen produce fine FORMICA products for leading furniture manufacturers.

-says PANEL PRODUCTS of National Casein Glues

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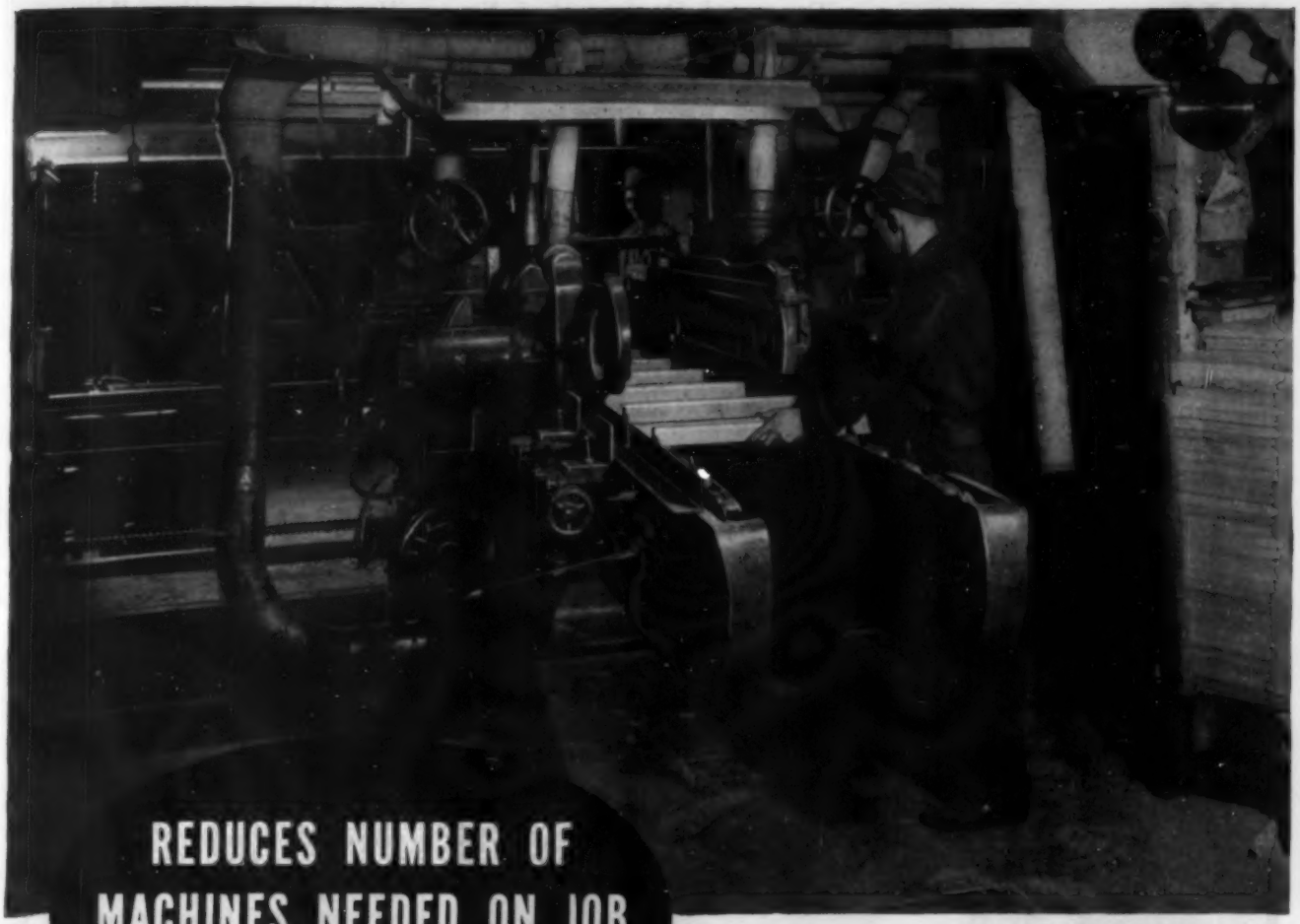

GREENLEE DOUBLE-END TENONER IN OPERATION AT
H. L. HUBBELL MANUFACTURING COMPANY, ZEELAND, MICHIGAN

REDUCES NUMBER OF MACHINES NEEDED ON JOB FROM 9 TO 3...

...Greenlee Double-End Tenoner

"At the time we purchased this machine, we were running quite a large job which required three mitre saws, a double cut off saw and five shapers. Within one week after the GREENLEE Double-End Tenoner was put into operation, the machines necessary on this job were reduced to one mitre saw and one shaper.

"In addition to this saving, our Cabinet Room output jumped more than 20% due to more perfect fitting or precision machining and a much improved general appearance of product."

That's what Mr. H. L. Hubbell of H. L. Hubbell Manufacturing Company, Zeeland, Michigan says about the versatile GREENLEE Double-End Tenoner.

Here is just another example of the many important savings and production benefits a GREENLEE Double-End Tenoner makes possible... from the machine room on through the cabinet and finishing rooms.

For, as a "woodworking plant in itself", it literally reaches out after extra work. It steals job after job from single-purpose machines . . . draws into itself scores of different, difficult jobs . . . to bring about new efficiencies, welcome cost reductions and superior finished work.

Write today for new GREENLEE Bulletin 545 with complete details. Greenlee Bros. & Co., 1925 20th Ave., Rockford, Illinois, U.S.A.

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GREENLEE WOODWORKING MACHINERY: MORTISERS • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING and BORING TOOLS

F.P.R.S.

(Continued from page 48)

At the conclusion of the technical session, a film on hot spray will be shown by the Hercules Powder Co.

SESSION VII–Tuesday p.m., June 24 –*Housing and Construction*, chairman –R. P. A. Johnson, chief, division of timber mechanics, Forest Products Laboratory, Madison, Wis.

"Trends in House Construction and Effects of Social and Economic Factors," L. O. Anderson, FPL, Madison, Wis.

"Design and Development of Nonloadbearing Partitions," W. H. Kapple, Small Homes council, University of Illinois, Champaign-Urbana, Ill.

"Are New Wall Constructions Structurally Sound?" Edward W. Kuenzi, FPL, Madison, Wis.

"Effect of Construction Techniques on Cost of Frame Wall Construction," J. T. Lendrum, Small Homes council, University of Illinois, Champaign-Urbana, Ill.

"Light Weight Prestressed Wood Arches as a New Type of Roof Construction." G. M. Rapp, John B. Pierce Foundation, Raritan, N. J.

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Whatever your requirements are for machined wood parts . . . stair treads and risers, thresholds, bed rails, table tops and other parts . . . you can always count on DELFAIR'S high quality and speedy service.
WRITE US about your specifications. The DELFAIR technical staff will be happy to work with you. Complete information gladly sent upon request.
D.L. FAIR LUMBER CO. - LOUISVILLE, MISS.

"How Often Should a House be Painted?" F. L. Browne and D. F. Laughan, FPL, Madison, Wis.

SESSION VIII–Wednesday, a.m., June 25–

Veneer and Plywood, chairman– M. C. McIver, president, Penokee Veseer Co., Mellan, Wis.

"Use of Tropical Woods in Veneer and Plywood," Robert W. Hess, Mengel Co.

"Soaking and Steaming of Peeler Logs," G. A. Seidel, Spliced-wood Corp., and J. E. Herschberger, Penokee Veneer Co., Mellen, Wis.

"Drying Hardwood Veneer," James S. Bethel and Robert J. Hader, N. C. State college, Raleigh, N. C.

"Development of Glueline-Cleavage Forest Products Laboratory, University of British Columbia, Vancouver, B. C.

"Automatic Moisture Testing Device," J. E. Hefferline, Laucks Sentry Products.

SESSION IX–Wednesday a.m., June 25–

GENERAL, chairman–George W. Stanley Jr., chief engineer, Hegewisch division, Pressed Steel Car Co., Inc., Chicago, Ill.

"Young's Modulus of Elasticity of Small Wood Beams by Dynamic Measurements," George Kitazawa, N. Y. State college of Forestry, Syracuse, N. Y.

"Chemical Brown Stain in Sugar Pine," M. A. Millett, FPL, Madison, Wis.

"Chemical Studies of Certain Tropical Woods," L. E. Wise, Ruth C. Rittenhouse, O. H. Olson, E. E. Dickey, and C. Garcia. Institute of Paper Chemistry, Appleton, Wis.

"Decay Control and Increased Permeability in Southern Pine Sprayed with Fluoride Solutions." R. M. Lindgren and George M. Harvey, FPL, Madison, Wis.

"Forest Utilization Problems and Opportunities in the Southwest Region," L. A. Mueller, Forest Utilization Service, Tucson, Ariz.

"Evaluation of Two Modern Wood Preservatives," H. P. Sedziak, Forest Products Laboratory, Ottawa, Canada.

"Laminated Lumber from Low Grade Hardwoods by the Continuous Glue Press Process," E. G. Wiesehuegel, TVA, Norris, Tenn.

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Vapor Drying

(Continued from page 44)

amount of moisture in the sticks at any time to the temperature of the vapor overhead.

By taking readings at definite intervals throughout the run, graphs were prepared that amplified any deviations from the normal or expected.

After enough runs were made to account for the important variables, then a 1" x 1" x 5" green stick was inspected for checks and splits with a 20 power magnifying glass. It was then dried in the dehydrating chamber to any desired moisture content and again inspected with the glass to observe any drying defects.

If the trial chemical indicated promise of drying wood then the next step covered the possibilities of recovering any and, if possible, all retained drying chemical that remained in the wood at the end of the drying period.

Vacuum has been used for removing the retained chemical[1] but because of the added cost of commercial pressure equipment, it was not employed in these tests. To date, this has been accomplished by steam. Wet steam with entrained liquid water—although it would accomplish the task—in so doing would put too much water back into the wood. Two hundred degree superheated steam would also take the retained chemical out but would have a tendency to darken the wood. Dry steam with just enough superheat to keep the vapor overhead above the dew point of the steam proved to be very effective.

To test the effectiveness of steam removal of the retained chemicals, the following procedure was adopted:

A 1" x 1" x 5" stick was weighed and then placed in the dehydrating chamber where all the moisture was removed. This was accomplished by allowing the drying cycle to continue for two hours after a constant reading of water in the water trap had been reached. Then the electric current to the evaporator heater was cut off and live steam admitted to the evaporator through one of the holes in the three-hole round bottom flask that served as the evaporator. The inlet steam was piped through a copper coil superheater and a thermometer in the vapor space in the evaporator indicated the temperature of the steam going into the dehydrating chamber. A thermometer in the vapor line gave the temperature of the vapor leaving the dehydrating chamber. By adjusting the heat in the superheater, the temperature of the vapor from the dehydrating chamber could be controlled easily.

When the reading of extracted chemical in the water trap became constant, the steam was shut off and the stick removed from the dehydrating chamber. It was weighed rapidly and placed in the toluene moisture extraction apparatus where all moisture retained by the stick through steaming was removed and recorded.

With these data the following information was obtained:

1. The amount of chemical removed from the wood by steaming.
2. The amount of chemical not removed from the wood by steaming.
3. The amount of moisture reabsorbed by the wood during the steaming process.

A pilot plant set up in the engineering laboratory was operated according to the information obtained in the chemical laboratory. The main difference being that the operation was carried out on a larger scale and with commercial sized wood.

END

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Saves up to 50% in time and 40% in labor costs
Assures simplified . . . accurate . . . fast . . . economical . . . in-plant sharpening and producing of cutters and knives
TOOL MEN in furniture factories and other woodworking plants can keep cutting tools at their productive best with a REDCO Profile Grinder right in their shop.
The REDCO Grinder accurately makes and sharpens high speed steel and carbide tipped profile cutters for shapers, molders and other similar tools. It enables you to produce cutters in your own plant. The REDCO Grinder assures fast, precision grinding.
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Motor Care

(Continued from Page 34)

are smooth and adequately lubricated. A film of oil then keeps them apart, and prevents metal-to-metal contact. In actual practice, though, bearings often receive too little oil, or the wrong oil, or grit gets into the oil and produces scraping, or the load on the bearing is so great that the film of oil breaks down.

A primary rule in fighting friction is to follow the lubrication instructions given by the motor manufacturer, specifying the type and grade of lubricant, the frequency of lubrication, etc. The operator should never guess at the grade and type of oil or grease. Only a lubricant of the best quality and correct grade suited to the requirements of each individual motor, should be used. If in doubt, contact the manufacturer or his representative.

In horizontal motor design, ball bearings, roller bearings, or sleeve-type bearings are used. The type depends upon the application of the motor, i.e., the nature of the driven machine, how power is transmitted from motor to machine, shock and noise limitations, position, exposure to water or dust, accessibility for servicing, etc.

Sleeve bearings on larger motors are split at the horizontal centerline to facilitate assembly and inspection. In small integral- and fractional-horsepower motors, solid bronze or babbitt-lined shells are used. In split sleeve bearing construction, babbitt, bonded to the bushing shell, and accurately bored to insure uniform clearances, provides the bearing surface.

Ring-oiling is generally used as the most simple and reliable method of delivering oil to split-sleeve bearings. The bearings are fed with circulating oil, "pumped" by the rings riding on the revolving shaft. The rings dip into the oil reservoir and carry oil to the top half of the bearing. Oil is fed by gravity into the lower half of the bearing where the load is carried. The excess oil, as it flows back into the reservoir, helps to carry heat away from the bearing.

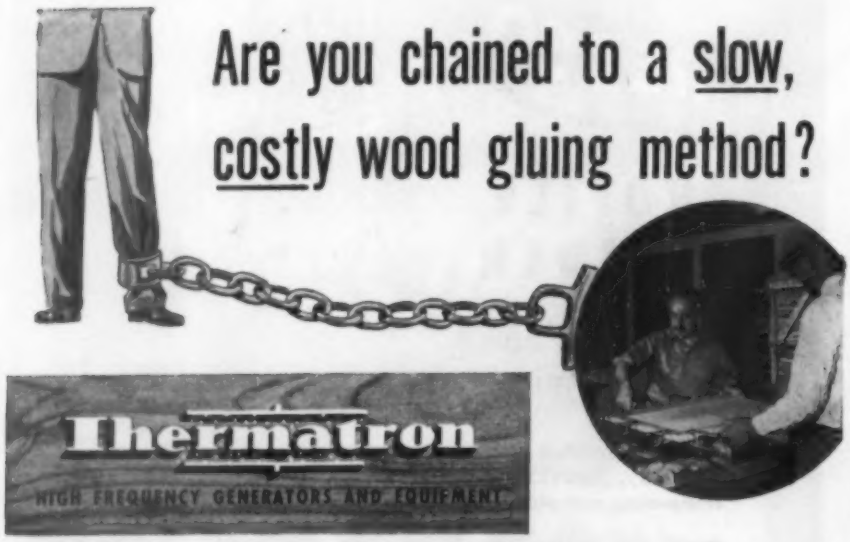
Check Oil Rings

Oil rings should be checked periodically to make sure that they are functioning properly. Inspection covers are provided in bearings for this purpose. If the ring is not turning freely, check for:

(1) Ring out of round from mishandling.
(2) An offset at the ring joint.
(3) Ring fouling on a projection or rough spot on the bearing casting.
(4) Nicks or rough spots on ring faces.
(5) Ring unbalanced. (The heavy side will remain down).
(6) Adhesion of ring to guide slot through oil film.
(7) Oil too cold, or too viscous.

Oil Level Check

The oil level, with the oil at operating temperature, and the machine not running, should be within ¼ inch of the top of the oil cup, or of the correct oil level when indicated on the machine. Oil should not be added to the reservoir of a sleeve type bearing while the machine is running, because it is unlikely that the operator will obtain a proper reading of the true oil level. Due to rotation, the oil ring tends to pile up oil on one side of the reservoir and lower it on the other. An overflow of excess oil could enter the motor enclosure and endanger the life of the windings, as previously discussed under "Stray Oil".



. . . For Permanent Wood Bonding in a Matter of Seconds!

Seen in the jig is an entire cabinet assembly to be glue-set electronically by THERMATRON in only 30 seconds. The bond is stronger than the wood itself by actual test! Hidden in the background is the 3 KW generator which masterminds this job.

The saving to you in time, labor, floor space and expensive veneers is immeasurable . . . And the bonds produced are stronger than the wood itself. Costly clamps and clamping time are eliminated, and there are far less rejects.

THERMATRON supplies the complete installation, including generators and jigs, under one contract and one responsibility. The immediate production savings THERMATRON brings you are often more than the initial installation cost.

Write us today for complete details about your bonding problem . . . We'll be glad to offer guidance without obligation. And ask us for our instructive bulletin No. W-5

HIGH FREQUENCY GENERATORS AND EQUIPMENT FOR ELECTRONIC GLUE DRYING • BENDING • EDGE GLUING • VENEER BONDING

Standard stock generators available from 500 Watt to 20 KW output, operating on 110 or 220 volt lines. Larger size generators up to 100 KW can be supplied for larger requirements.

*T. M. Reg. U. S. Pat. Off.

Thermatron equipment
RADIO RECEPTOR COMPANY, Inc.
Sales Dept. 251 W. 19th St. New York 11, N. Y. • Factory 84 N. 9th St. Brooklyn 11, N. Y.

(Treating-Continued from Page 24)

graph. The loads are lifted from the truck with a yoke and the entire load is dipped into the tank and left for a duration of approximately five minutes. The weight of the yoke is sufficient to prevent any floating of the lumber and holds the packages in complete submergence. The lumber is then lifted from the tank, allowed to drain for two or three minutes, and then stored on kiln trucks on the green storage track. In storing this lumber on either of the two storage tracks, we do so with the idea in mind of consolidating the major species in each truck load. This materially aids in final separation for grade and species.

"Any of the anti-stain solutions can be satisfactorily used. We are currently using Permatox 10 in a slightly higher concentration than that normally used in a green chain tank process.

"At the end of two years of operation we have found that we have been able to practically eliminate stain from such woods as sap gum, black gum, and other species susceptible to infection.

"It takes approximately fifteen minutes to complete the cycle from unloading the truck to storage on tracks, and from six to ten thousand feet of lumber can be treated per hour of operaion.

"The system is flexible enough to handle peak receipts of green lumber at a minimum of cost as it is literally a one-man operation although in most cases two men are used.

"The savings in degrade of lumber caused by stain have more than paid for the cost of installation of the tank and equipment within the first six months of operation, and we feel that others who are faced with this problem will find this an economical solution."

turn scrap into profit with

M&M HOGGING EQUIPMENT

Utilize every bit of scrap by turning it into extra dollars with M & M hogging equipment. M & M machines are built in many types and sizes for slabs, edgings, trim, blocks, veneer, bark, and other combustible waste. Send us your scrap problem and we'll show you how M & M hogging equipment can solve it.

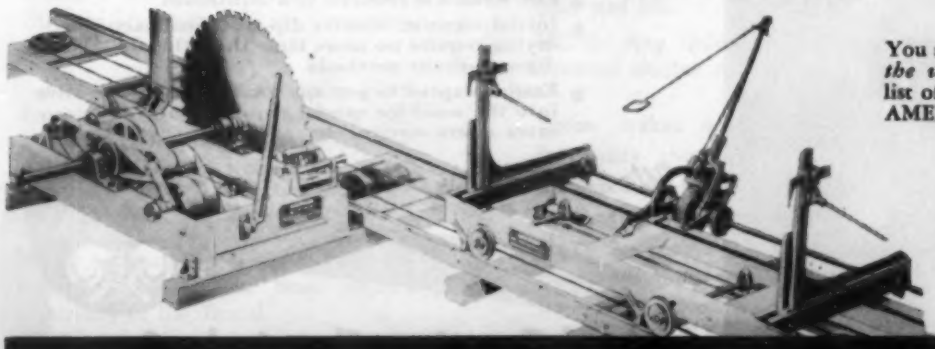
MITTS & MERRILL

1018 South Water • SAGINAW, MICHIGAN 69

YOU ASKED FOR IT-
AND AMERICAN HAS IT

In a nation-wide survey just completed among thousands of lumbermen, the great majority put these vital needs first in saw mill machinery:

1. ***CUTTING ACCURACY***
2. ***LABOR SAVING FEATURES***



You asked for them — and they are *the very advantages* that head the list of *many benefits* found only in AMERICAN mill equipment.

Write today or see your local American dealer for detailed specifications. Tell us your type of lumbering operations and we will recommend the best units for your needs.

AMERICAN SAW MILL MACHINERY COMPANY

Quality Saw Mill Equipment Since 1903

206 MAIN STREET HACKETTSTOWN, NEW JERSEY

Better, Faster, Lower-Cost

Penta & Water Repellent

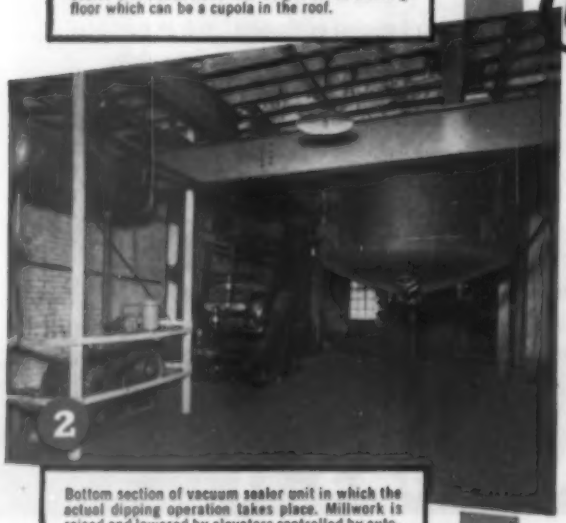
(WOODTOX) Treatment With This

NEW VACUUM SEALER

In Operation At

CARR, ADAMS & COLLIER CO.
DUBUQUE, IOWA

Charge of millwork ready to be removed from treating unit after treating cycle of a preliminary vacuum, dip operation and final vacuum. Vacuum sealer unit needs about 22' height above treating floor which can be a cupola in the roof.



Bottom section of vacuum sealer unit in which the actual dipping operation takes place. Millwork is raised and lowered by elevators controlled by automatic timer. Unit can be installed in one story building with this bottom section in a pit.

Lid of treating unit closed for vacuum operation. 7½" of vacuum attained in 11 seconds; 16½" in about 1½ minutes. Raises or lowers in 17 seconds. This is the side of the unit into which the trucks are loaded.

The 3-minute open dip-tank treatment, with various methods to accelerate draining and drying, has been used for years by millwork manufacturers to meet NWMA standards for fungicidal control against decay, and for Swellograph dimensional control tests to determine water repellent efficiency. Many disadvantages are inherent in virtually all these procedures which add to cost by slowing up production, create expensive "housekeeping" problems and generate dangerous fire hazards.

Now these disadvantages have been overcome by this new Wood-Treating "Vacuum Sealer" which makes available to the millwork industry the "final vacuum method" of quick-drying treated sash and doors—a method long employed by the wood preserving industry as the best, cheapest and most practical of all.

Briefly, this relatively inexpensive Vacuum Sealer offers these desirable benefits:

- **Better distribution and deeper penetration of preservative within the wood gives better protection**
- **A dryer surface faster for glazing, painting and finishing without lost production time**
- **No dripping on floors and equipment eliminates housekeeping problems**
- **Fire hazard is reduced to a minimum**
- **Initial vacuum, shorter dip, and final vacuum drying require no more time than the old dip-and-drain methods**
- **Easily adapted to put any amount of preservative into the wood for special requirements, extra severe service, etc.**

Write for Complete Details

Wood-Treating Chemicals Co.
5137 Southwest Ave. • St. Louis 10, Mo.
WOODTOX, TIMBERTOX, and a Complete Line of Wood Preservatives

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Names... Events

Personnel Changes

T. J. CONNELLY was elected President of the DEAN Co., Chicago, March 22, 1952. He succeeds the late PHILIP D. DEAN who assumed the office a year ago when THOMAS A. DEAN became Chairman of the Board. Mr. Connelly, who was named Executive Vice-President and Sales Manager two years ago, will continue to direct the sales of the company.

F. O. FRAZIER is the new Assistant State Forester in charge of fire control for West Virginia.

JOHN H. BEACH has been named Manager of the Lewis River and national timber divisions of the HARBOR PLYWOOD CORP., Aberdeen, Wash.

H. R. GLASCOCK, newly appointed Forester for Oregon for PACIFIC NORTHWEST FOREST INDUSTRIES, has opened offices in Eugene to serve the forest industry in western Oregon south of the Columbia River counties.

ALBERT ARNST has been named Editor of THE TIMBERMAN, published in Portland, Ore. Mr. Arnst has been associated with the WEYERHAEUSER TIMBER Co. since 1946.

EMANUEL FRITZ, Associate Professor of Forestry, University of California, has been named by FORTNIGHT, the California news magazine, as one of the "Top Performers for 1952".

LAURENCE E. CLARK, JR., a veteran of twelve years in the wood glue industry, has been named Technical Director of PERKINS GLUE COMPANY, Lansdale, Pa.

KEITH C. ALDRICH, formally Vice-President and General Manager and a director of the BLAIR-VERMONT PLYWOOD Co., has resigned.

LEONARD G. CARPENTER has been named President of the MCCLOUD RIVER LUMBER Co. PAUL V. EAMES, former President, has been elected Chairman of the Board.

MATTHEW E. DUNLAP, Research Engineer at the U. S. FOREST PRODUCTS LABORATORY, retired on March 31 after more than 35 years on the Laboratory staff. He plans to divide his time between his farms in Illinois and private consulting practice along the lines of his work at the Laboratory.

Associations

SYDNEY FERGUSON, Chairman of the MEAD CORPORATION, is the newly-elected President of the AMERICAN PAPER & PULP ASSOCIATION.

E. O. EHRHART, of the ARMSTRONG FOREST CO., was elected President of the AMERICAN PULPWOOD ASSOCIATION.

The SOUTHERN LUMBERMEN'S CLUB elected new officers, as follows: President, J. W. ZUBER, of the ZUBER LUMBER CO., Vice-President, W. A. DOLAN, JR., of the DOLAN LUMBER CO.; Secretary-Treasurer, MRS. ETHALNIND MCCARTHY, Southern Lumber Journal.

VICTOR H. CLAUSEN has been appointed to the research and technical division of the CALIFORNIA REDWOOD ASSOCIATION, with offices at Eureka.

EBERLEY THOMPSON, Vice-President of the M and M WOODWORKING CO., Portland, Ore., is the new Chairman

(Continued on page 58)

a UNION machine . . .
TO MEET ANY WOOD GLUING NEED

Union Serves Over 2,000 Satisfied Customers

UNION
Automatic Roller Coater

Unexcelled for accurate, economical operation in spreading all types of coatings.

Standard models take sheet widths from 12" to 108"; thickness variance from 0" to 4". Available with hollow rolls to permit circulation of cold water through them. Prolongs pot life of resinous adhesives. A temperature reduction of 15° will double your pot life.

NOTE: Any Union spreader may be equipped with rubber-covered doctor roll, if desired, at no additional cost.

Union makes equipment for every standard production job in wood gluing. Designs and makes machines for special applications, including machines for electronic gluing.

Write for data on the complete Union line. Name of agent in your territory sent on request.

●

Write for your free copy, "The How's and Why's of Wood Gluing," by Thomas D. Perry.

UNION TOOL CORP.
312 East Market Street
Warsaw, Indiana, U.S.A.

USERS SAY UNION CUTS COSTS — SPEEDS PRODUCTION

Names . . . Events

(Continued on page 57)

NATIONAL ASSOCIATION OF MANUFACTURERS' Conservation of Natural Resources Committee.

D. A. MCNEILL, JR. McNeill, Lauff & McNeill, Thompson, Ga., has been elected President of the NATIONAL WOODEN BOX ASSOCIATION.

DONALD S. DEWITT, President of the HOLT HARDWOOD CO., Oconto, Wis., was elected President of the MAPLE FLOORING MANUFACTURERS ASSOCIATION.

RICHARD W. PETTERSEN, Portland, Ore., specialist in wood technology and a former "smoke jumper" with the U. S. Forest Service, has joined the Allied Products Dept. of the DOUGLAS FIR PLYWOOD ASSOCIATION in Tacoma, Wash.

The NATIONAL LUMBER MANUFACTURERS ASSOCIATION will hold a Golden Anniversary Meeting in celebration of its 50th year of service to the industry. It will be held May 8-10 in the Jefferson Hotel, St. Louis, Mo.

JOHN C. TAYLOR, President of American Houses, Inc., New York N. Y., was re-elected President of the PREFABRICATED HOME MANUFACTURERS' INSTITUTE at the association's recent ninth annual meeting in Chicago.

W. M. HALLET, Hallett Mfg. Co. Mobile, Ala., was elected President of the SOUTHERN HARDWOOD PRODUCERS, INC., at the annual convention held recently in New Orleans, La. C. R. RANSOM, W. A. Ransom Lbr. Co., Harahan, La., was elected Vice-President, and L. J. HEATHERLY was re-elected Secretary-Manager. The following directors were elected for terms to expire in 1953: Mark Townsend, Sam D. Cursey, W. R. Jones, C. H. Proetz, Kirby Herndon, E. R. Thomas, F. T. Turner and Jack DeMange.

Miscellaneous

Production of ethyl alcohol from Douglas Fir wood waste has been resumed at the plant of the OREGON WOOD CHEMICAL CO., Springfield, Ore.

The GEORGIA-PACIFIC PLYWOOD CO., Augusta, Ga., UNITED STATES PLYWOOD CORP., New York, N. Y., and the WEYERHAEUSER TIMBER CO., Tacoma, Wash., have been awarded Certificates of Management Excellence for the year 1951 by the American Institute of Management, New York, N. Y.

THE AMERICAN BOX CO., 1900 W. 3rd St., Cleveland, Ohio, was awarded —for the second consecutive year—the title "Safest Woodworking Plant in Ohio". The award was presented at the 21st Annual Greater Cleveland Industrial Safety Campaign banquet recently held in Cleveland.

Financial aid, in the form of 30 fellowships for $900 to $1350, is offered graduate students in forestry for the 1952-53 college year at State University of New York College of Forestry, Syracuse, N. Y. A number of graduate scholarships also will be awarded.

More than 7,000,000 pine seedlings of the 23,000,000-seedling crop of the Arkansas State Forestry Department's Jefferson County nurseries have been delivered to Arkansas timberland owners, and all the remaining seedlings are contracted for.

FUTURE FURNITURE MARKET DATES for the American Furniture Mart, Chicago, are: June 16-26, 1952; January 5-16, 1953; June 15-25, 1953; January 4-15, 1954; June 14-24, 1954; January 10-21, 1955; June 20-30, 1955; January 9-20, 1956.

KELLER PRODUCTS, INC., of Manchester, N. H., in conjunction with

IF IT'S TURNED, A NASH CAN SAND IT!

Nash Sanders are the answer to the need for increased production, quality production, at lower cost. Nash Sanders are "standard of the world," backed by many years' outstanding production records, and have always maintained leadership by constant improvement.

FASTER, BETTER SANDING AT LOWER COST

Write FOR DETAILED INFORMATION...
SEND SAMPLE OF STOCK FOR DEMONSTRATION

Beaded Turning Sanders, Spool and Bobbin Sanders, Automatic Round Stock Sanders, 4 and 12-Spindle Universal Power Feed Boring Machines and other special machines.

J. M. NASH COMPANY
2359 N. 30th Street, Milwaukee 10, Wisconsin

the military shelter program, has developed bonded plywood structural "I" beams.

WEYERHAEUSER TIMBER CO. has appointed the Industrial Relations Dept. of the University of Chicago to make a survey of employee opinions covering the important factors of each individual's job. All those in the lumber and pulp divisions and the Tacoma general offices will be interviewed on company time. The company officials will not see the replies.

REICHHOLD CHEMICALS, INC., New York City, has concluded arrangements for the manufacture of a complete line of synthetic resins for the paint, paper, printing ink and plywood industries in Israel.

THE ARMSTRONG FOREST CO., Johnsonburg, Pa., has purchased patent rights for chemical girdling of trees from Alexander R. White of Pt. Arthur, Ontario.

CROSSETT COMPANY, Crossett, Ark., gave their two millionth pine seedling to John Anderson, Union county farmer. The company's conservation plan of replacing every tree that comes to the Crossett lumber and paper mills with a free seedling is now under way in 12 Arkansas counties and four Louisiana parishes.

The lumber industry's "SCOTLAND Yard"—the West Coast Bureau of Grades and Inspections—announced an all-time high membership of supporting mills—50 members.

Over 110 individuals and business establishments in Miami subscribed to a loan to enable THE EDSON FURNITURE CORPORATION to go back into business in their home town of Miami, Okla., after their furniture factory at Webb City, Mo., was destroyed by fire.

SIMONDS SAW & STEEL CO., Fitchburg, Mass., announces the appointment of DUCOMMUN METALS & SUPPLY CO., of Los Angeles, Cal., as a distributor for Simonds products to western industry. Ducommun maintains branch offices in San Francisco, Salt Lake City, Fresno, Bakersfield, San Diego and Phoenix, Ariz.

RUNE FJELLMAN of the FJELLMAN PLYWOOD PRESS, Mariestad, Sweden, and its affiliate sales and service agency, FJELLMAN & WINTHER COMPANY, Joliet, Ill., is now in America supervising the first installations of his company's presses in this country.

First prize in the Meyercord contest on problem-solving commercial uses for decals, (a ten-day all-expense Flagship airtour of Mexico via American Airlines) was awarded to M. R. ABRAMS of View-lex, Inc., Long Island City, N. Y. by THE MEYERCORD COMPANY, Chicago.

The week of May 5-9 has been set for the TIMBER ENGINEERING COMPANY's next glue school for training industry personnel in the use of modern adhesives in defense production. The school will be conducted at the TECO research laboratory in Washington, D. C.

UNITED STATES PLYWOOD CORP. has guaranteed not to increase its current carload prices on Douglas Fir Plywood for six months, though it has a sixty day order file. The company said the policy was adopted to stabilize its prices.

"CERTIFICATES OF SERVICE" honoring 188 U. S. businessmen who have served without compensation to aid the Government's Defense Program were presented by Secretary of Commerce CHARLES SAWYER at a recent meeting in Washington, D. C. Among

(Continued on page 60)

Some things must be left to chance...

but...THERE'S NO GAMBLE when you use any of the

MONITE CASEIN, UREA RESIN or POLYVINYL GLUES!

Name the job . . . you'll find there's a MONITE Glue that's faster . . . easier . . . less expensive to use!

FINE VENEERS—Makers of quality musical instruments know the difference the glue can make in gluing fine veneers. Chipping . . . peeling . . . discoloration—these problems can be avoided by using the right MONITE Glue.

CURVED PLYWOOD—Chairs, desks and other school furniture must be light . . . yet sturdy enough to stand rough usage. Produced to sell at low prices, manufacturing costs must be held to rock bottom. There's a MONITE Glue that meets these problems exactly.

LAMINATED LUMBER—Butcher's blocks, arches, counters, etc., require a glue of terrific joint strength and high water resistance. Where segments of wood must be bonded together permanently, select a MONITE Glue!

For everything from cribs to caskets . . . drinking straws to laminated structural members—quality-minded, cost-conscious manufacturers are specifying MONITE Glues! Constant testing . . . constant research . . . constant improvement has kept MONITE Glues abreast of the latest developments in the wood-working field for over 35 years. *H. L. Prestholdt, Pres.*

Ask for copy of "The First Pair of Skis".

Try MONITE Glues in *your* job!

● *Write for Complete Information, TODAY!*

MONITE WATERPROOF GLUE CO.

1008 Monite Building, Minneapolis 11, Minn.

Names . . . Events

(Continued from page 59)

those so honored were: CHARLES ARTHUR BRUCE, E. L. Bruce Co., Memphis, Tenn.; MARJEN HENRY COLLET, West Virginia Pulp & Paper Co., New York, N. Y.; JOHN EMIL FRANZEN, Hammermill Paper Co., Erie, Penn.; FRANK DE CARADEUC HEYWARD, Gaylord Container Corp., Bogalusa, La.; CHARLES WARD INGHAM, Fischer Lumber Co., Marcola, Ore.; JOHN CLYDE PRITCHARD, Lumber Dealers, Inc., Denver, Co., Denver, Colo.; JAMES LYALL RITCHIE, United States Pulp Producers Association, Inc., New York, N. Y.

The ARMSTRONG MANUFACTURING Co., Portland, Ore., is in its 50th year in business. No special celebration is being planned, however the company is noting the fact to business friends through special advertising and correspondence stickers.

An attendance representing 15 States and 2 foreign countries, marked the 77th demonstration of modern technique in the kiln drying of lumber held recently at the U. S. FOREST PRODUCTS LABORATORY, Madison, Wis.

GULF NAVAL STORES, Gulfport, Miss., will establish a new pine stump processing plant near Andalusia, Ala.

Deaths

THOMAS H. PATTERSON, senior member of PATTERSON BROTHERS, formerly of Fifield, but recently of Minocqua, Wis., died March 13.

CLAYTON MAYBERRY HAWK, 60, Grand Rapids, Mich., designer for several nationally known furniture companies, died March 3 in Lenoir, N. C.

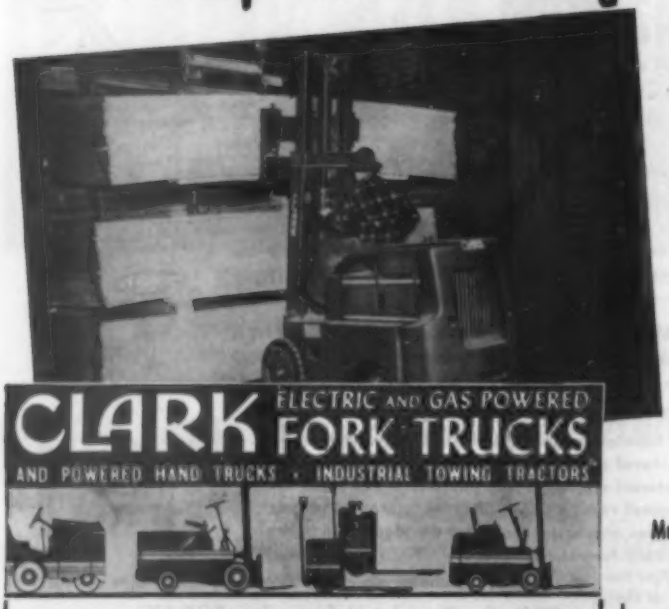
JAMES NICHOLAS WHITE, veteran founder of the LOUISVILLE COOPERAGE Co., Louisville, Ky., back in 1904, died March 27th.

THEODORE F. DREYFUS, President of the DIXIE PINE PRODUCTS Co., Hattiesburg, Miss., died recently at the age of 73.

C. W. GORDON, a well-known Appalachian lumber operator for many years, died at his home in Ashville, N. C., recently.

NOLAN P. ECKARDT, Manager of the Woodworking Machinery and Coated Abrasive Division of the UPTON BRADEEN & JAMES, LTD., Toronto Ontario, Canada, died April 5, 1952.

With manpower shrinking and hard to get, why not get MORE POWER— more man-hours more production —out of the man-power you have, by using CLARK EQUIPMENT for your Materials Handling.



CLARK ELECTRIC AND GAS POWERED FORK TRUCKS
AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 120, MICHIGAN
Please send: ☐ Material Handling News ☐ Condensed Catalog
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Return the coupon and get this helpful free literature.

Save Time With Our Fine Oak Dimension Stock

- KILN DRIED
- FLAT
- GLUED-UP
- SOLID
- STRAIGHT
- SURFACED

Furniture manufacturers make savings when they use Memphis Hardwood Flooring Co.'s semi-finished dimension stock. No time wasted means lower costs and better profits.

Send us your specifications for quotations

Chickasaw Brand Oak Flooring
Pre-finished and unfinished
Treads—Risers—Thresholds

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HARDWOOD FLOORING CO.
Since 1905
1591 Thomas St. • Memphis, Tenn.

Importers of
GENUINE MAHOGANY

Wholesalers of
BAND SAWN
PONDEROSA &
SUGAR PINE
SOFT TEXTURED
BIG MILL HIGH ALTITUDE STOCK

CALIFORNIA REDWOOD
BAND SAWN HUMBOLDT BAY

We Maintain a
West Coast Buying Office

DON B. WALLACE INC.
Guardian Building
Detroit, Michigan

MARKETS

These prices are estimates made available by Mr. George Land, publisher of the *Hardwood Market Report*, and reflect prices as indicated in his copyrighted issue of March 8, 1952. Mr. Land's complete report is available weekly; those who want the entire list should contact him c/o Box 5716, Memphis 4, Tenn.

SOUTHERN HARDWOODS

F.O.B. mills—Texas & Louisiana area—estimate of present FOB Texas & Louisiana mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Southern Hardwoods in carload quantities, random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'. on straight cars of upper bracket grades premiums are frequently being paid.

	FAS	No. 1C	No. 2C
ASH—FIRM TEXTURE			
4/4-in.	155	108	59
4/4-in.	155	108	62
6/4-in.	168	120	65
8/4-in.	180	140	70
BASSWOOD			
4/4-in.	160	125	80
6/4-in.	170	135	87
8/4-in.	180	145	90
BEECH			
4/4-in	125	100	55
6/4-in.	140	110	60
8/4-in.	167	127	72
CHERRY			
Same as Appalachian			
RED GUM—PLAIN			
4/4-in.	200	150	70
6/4-in.	230	170	75
RED GUM—QUARTERED			
4/4-in.	220	165	75
6/4-in.	250	190	90
8/4-in.	260	200	95
SAP GUM—PLAIN			
4/4-in.	110	90	40
6/4-in.	130	110	42
8/4-in.	160	140	
HACKBERRY			
4/4-in.	110	90	63
6/4-in.	125	105	75
8/4-in.	135	110	75
HICKORY			
Temporarily suspended			
MAGNOLIA			
4/4-in.	170	135	65
6/4-in.	185	143	84
8/4-in	205	147	86
SOFT MAPLE—WHAD			
4/4-in.	130	110	67
6/4-in.	145	120	77
8/4-in.	155	125	80
SOFT MAPLE—WHND			
4/4-in.	115	90	60
6/4-in.	130	105	75
8/4-in	135	110	80
RED OAK—PLAIN			
4/4-in.	175	105	60
6/4-in.	190	135	
8/4-in.	200	140	
WHITE OAK—PLAIN			
4/4-in.	180	115	60
6/4-in.	195	140	
8/4-in.	205	145	
PECAN			
4/4-in.	110	90	50
6/4-in.	130	110	60
8/4-inf.	155	130	65

	FAS	S&S	No. 1C
POPLAR—PLAIN			
4/4-in.	165	155	125
6/4-in.	185	175	140
8/4-in.	205	195	150

	FAS	No. 1C	No. 2C
SYCAMORE—PLAIN			
4/4-in.	115	95	60
6/4-in.	125	105	60
TUPELO—PLAIN			
TUF TEXTURE—DEEP SWAMP			
4/4-in.	110	90	40
6/4-in.	130	110	
8/4-in.	160	140	
WILLOW			
4/4-in.	140	120	60
6/4-in.	142	122	67
8/4-in.	150	125	70

APPALACHIAN HARDWOODS

F.O.B. mills—Johnson City, Tennessee area—estimate of present FOB Appalachian mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade of band-sawn Appalachian hardwood in carload quantity, random widths & lengths, rough, air dried & graded in accordance with

(Continued on page 63)

How to Keep

The answer . . . short and simple! *Select and install Jewel Brand Bondex Garnet Fibre abrasives.* Here's why.

Bondex Garnet Fibre is made to last from eight to ten times longer than ordinary garnets . . . more than meets the demands of high-speed, continuous sanding operations . . . *increases* production, *decreases* shut-downs. Faster, smoother-cutting Jewel garnet is evenly cemented to a strong, vulcanized fibre backing with Bondex — the powerful, heat-resistant adhesive that adds hours of extra life to drum covers and assures smooth, bump-free sanding. A rugged, work-proven abrasive, Bondex Garnet Fibre eliminates production breakdowns due to "broken felts" . . . produces clean, satin-smooth finishes . . . *cuts costs right from the start!*

Try Bondex Garnet Fibre now. It's available in 50 yard rolls — 24 and 36 inches wide. Your jobber can supply you with full details on the complete line of Jewel Brand Woodworking Abrasives — or write us direct. Abrasive Products, Inc. 553 Pearl Street, South Braintree, Mass.

SHARPER, TOUGHER

Jewel Brand COATED Abrasives

CUT COSTS!

There's A Moore Cross-Circulation System for Every Drying Need

LUMBER

Ga.-Pacific Plywood Co., Steelwood, Ala.

VENEER

Armentrout Veneer Co., High Point, N.C.

COOPERAGE

Nat. Distillers Prod., Memphis, Tenn.

Write for information— Do it today!

MOORE DRY KILN COMPANY

Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE FLORIDA · HAMILTON, ONT. CANADA · VANCOUVER, B. C. CANADA · NORTH PORTLAND OREGON

Facilities To Serve You

DRY KILNS—20 Tracks of Latest Moore Design Capacity 1 million feet per charge.

DRY SHEDS—Ample storage Adjacent to Carline Means Dry Lumber for you.

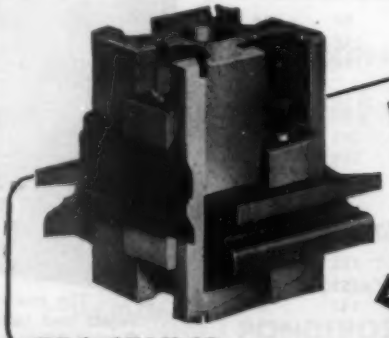
DRY LOADING DOCK—Can Load 19 Cars Under Roof. Assures you quick Shipment Regardless of Weather.

THERE IS NEVER A LET DOWN IN OUR QUALITY- PRECISION MANUFACTURE

The Ralph L. SMITH Lumber Company

ANDERSON, WPA **CALIF.**

Mills: Anderson & Canby, California
Sales Office: Anderson, California



PUT THEM TO ANY *test*—

- ★ LONG LIFE
- ★ VERSATILITY
- ★ LOW COST
- ★ HIGH PRODUCTION

THE SHIMER COMBINATION HEAD

. . . a master tool for master craftsmen— for a wide range of woodworking jobs!

You'll cut costly set-up time and boost production with Shimer Combination Heads! They're available with milled-to-pattern bits that hold their pattern permanently for door and sash (either standard or special), as well as for matching, shiplap and mouldings of most any shape! Bits may be quickly and correctly set-up with convenient gauge furnished. Put the Shimer Combination Head to any test—it will quickly prove its value in your shop!

WRITE FOR YOUR FREE COPY OF OUR ILLUSTRATED PATTERN BOOK!

SAMUEL J. SHIMER & SONS, Inc.
RACE STREET • MILTON, PENNA.

SHIMER

NHLA rules of inspection. Prices in dollars per M'. on straight cars of upper bracket grades, premiums are frequently being paid. Basis selected for the purpose of indicating transportation costs to principal consuming markets from Johnson City, Tennessee area.

TOUGH ASH

	FAS	FIF	No. 1C	No. 2C
4/4-in.	160	150	110	67
6/4-in.	180	170	122	72
8/4-in.	190	180	147	85

BASSWOOD

				No. 2A
4/4-in.	180	170	130	84
6/4-in.	190	180	137	94
8/4-in.	195	185	147	96

BEECH

				No. 2C
4/4-in.	145	135	110	75
6/4-in.	160	150	120	75
8/4-in.	170	160	130	80

BIRCH

4/4-in.	205	195	140	80
6/4-in.	220	210	150	85
8/4-in.	230	220	155	90

BUCKEYE

4/4-in.	135	125	100	65
6/4-in.	160	150	115	73
8/4-in.	165	155	120	73

CHERRY

4/4-in.	200	190	135	80
6/4-in.	225	225	160	85
8/4-in.	250	240	170	90

CHESTNUT

	FAS	No. 1C	FAS WHND	1C & B WHND
6/4-in.	165	115	135	125
6/4-in.	170	120	140	130
8/4-in.	175	125	150	140

HICKORY

	FAS	FIF	No. 1C	No. 2C
4/4-in.	125	115	78	53
6/4-in.	145	135	86	58
8/4-in.	165	155	90	60

HARD MAPLE

4/4-in.	190	180	125	80
6/4-in.	200	190	135	84
8/4-in.	205	195	145	90

SOFT MAPLE

4/4-in.	160	150	115	67
6/4-in.	170	160	125	69
8/4-in.	175	165	130	72

RED OAK—PLAIN

4/4-in.	185	175	120
6/4-in.	200	190	135
8/4-in.	215	205	145

WHITE OAK—PLAIN

4/4-in.	200	190	125
6/4-in.	220	210	145
8/4-in.	225	215	155

WHITE OAK—WHND

	FAS	FIF	C & B	No. 1C
4/4-in.	115	105	90	85
6/4-in.	140	130	120	110
8/4-in.	150	140	125	115

YELLOW POPLAR—PLAIN

	FAS	FIF	No. 1C	No. 2A
4/4-in.	210	200	140	88
6/4-in.	220	210	150	93
8/4-in.	230	220	160	..

POPLAR SQUARES

	FAS	No. 1C & SD
4x4-in.	245	175
6x6-in.	280	190
8x8-in.	340	240

WALNUT—STEAM TREATED

	FAS 6' & up	FIF 6' & up	No. 1C	No. 2C
4/4-in.	350	305	185	80
6/4-in.	370	325	210	95
8/4-in.	385	340	235	100

Walnut list reflects average fob mill, all areas. Basing point not generally observed.

NORTHERN HARDWOODS

Estimate of present FOB Wausau, Wisconsin mill point average ceiling price sales made subsequent to January 25, 1951 to consuming trade on band-sawn Northern hardwoods in carlond quantities random widths & lengths, rough air dried & graded in accordance with NHLA rules on inspection. Prices in dollars per M'.* On straight cars of upper bracket grades, premiums are frequently being paid.

BROWN ASH

	FAS	No. 1C	No. 2C
4/4-in.	145	105	73
6/4-in.	155	120	83
8/4-in.	160	130	88

BASSWOOD

4/4-in.	180	125	78
6/4-in.	190	135	88
8/4-in.	195	145	96

BEECH

4/4-in.	145	100	68
6/4-in.	160	115	78
8/4-in.	165	120	80

BIRCH

4/4-in.	265	145	80
6/4-in.	275	160	90
8/4-in.	280	175	100

ROCK ELM

4/4-in.	135	115	65
6/4-in.	145	135	75
8/4-in.	150	135	80

SOFT ELM

4/4-in.	125	105	71
6/4-in.	135	115	81
8/4-in.	140	120	84

HARD MAPLE

4/4-in.	190	130	78
6/4-in.	200	140	81
8/4-in.	205	145	83

SOFT MAPLE

4/4-in.	155	120	72
6/4-in.	170	130	83
8/4-in.	185	140	90

RED OAK

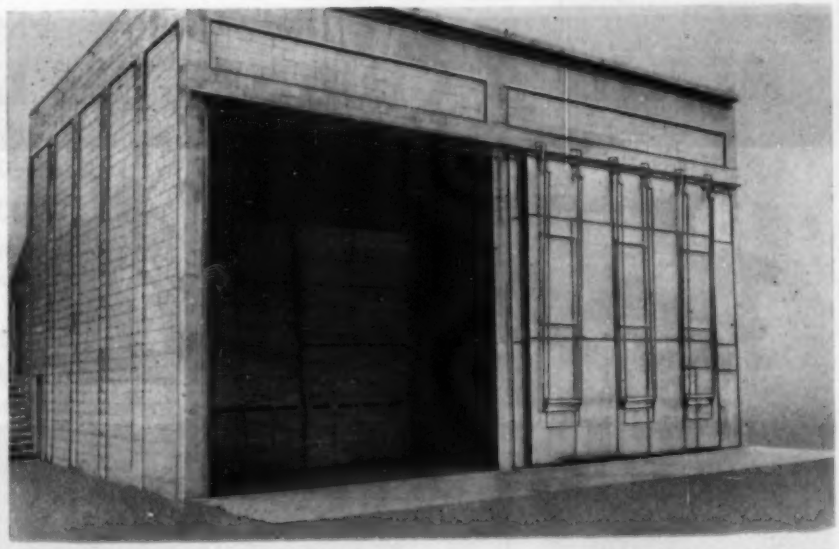
4/4-in.	175	125	77
6/4-in.	185	145	83
8/4-in.	195	155	85

*Air dried Northern Hardwoods are no longer available and sales presently being made cover green stock or stock only partially seasoned. Orders are being placed for stock to be cut and shipped green when accumulated.

NORTH COAST

"DIRECT-FLO"

DRY KILN



REVERSIBLE CIRCULATION • UNIFORM DRYING

NEW KILNS

KILN MODERNIZATION • KILN ACCESSORIES

The North Coast Dry Kiln is the most efficient kiln in operation today. The Fans are positioned at the sides of the lumber loads so that the air follows the shortest possible "DIRECT-FLO" path. This insures uniform efficient drying with lowest possible power consumption.

We manufacture Kilns to your Specifications.
Write Dept. WK-1, for Dry Kiln Catalog 366.

OFFICES AND WAREHOUSES IN
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LOS ANGELES, CALIFORNIA
HONOLULU, HAWAII - MANILA, P. I.
VANCOUVER, BRITISH COLUMBIA

E. M. LOVSTED & CO., INC.
ENGINEERS AND MANUFACTURERS
4000 W. MARGINAL WAY - SEATTLE 6, WASH.
PHONE AValon 4000

Packaging

(Continued from Page 23)

Chief, Packaging Development Branch, Engineering Research and Development Laboratories, Fort Belvoir, Va. was contacted. The publications and specifications recommended for this preliminary study by Mr. Sargeant include:

Military Specifications concerning packaging and packing materials, available from the Corps of Engineers district offices:

JAN-P-103—Boxes; Wood Cleated, Solid Fiberboard.

JAN-P-104—Crates; Sheathed, Wood, Nailed.
This crate is a large item in procurement in all military supply channels.

JAN-P-105—Boxes; Wood Cleated, Plywood.
This box is second only to Boxes; Wood, Nailed, in market.

JAN-P-106—Boxes; Wood, Nailed.
This box is the largest procurement item in packing containers; however, little if any lumber less than ⅝-inch is procured even though thinner material is specified herein.

JAN-P-107—Boxes; Wood, Wire-Bound.

JAN-P-108—Boxes; Fiberboard (V-Board and W-Board), Exterior and Interior.
The material used in these containers were developed for the purpose of military packaging. Millions of units are made for military packaging.

JAN-P-109—Barrels, Tight.
This container has been partially replaced by metal containers and the demand is not enormous.

JAN-D-111—Drums, Fiberboard (Overseas Type).

JAN-P-112—Drums, Plywood.

JAN-P-122—Barrels, Slack.

JAN-P-132—Crates; Unsheathed, Wood, Nailed.
This crate is used primarily for building boards, pre-fab building sections and equipment items of medium weight.

JAN-P-134—Kegs, Slack.
This item is in short supply, primarily west of the Mississippi River. It is used principally for nails, bolts, rivets, etc.

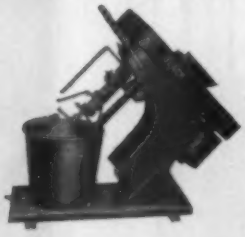
JAN-P-138—Boxes; Wood, Fiberboard-Lined.
This container has a limited market.

JAN-P-139—Plywood, Container Grade.
This specification is under revision, however, it will remain essentially the same.

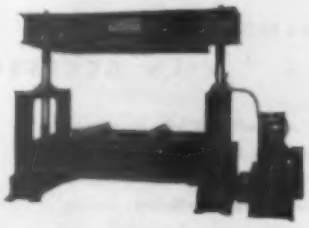
MIL-P-10709—Pallets, Stevedoring, Wood, 4 Ft. by 6 Ft. Knockdown.

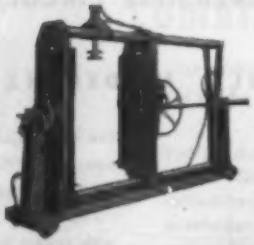
(Continued on Page 66)

BLACK'S COMPLETE LINE OF.....



GLUE SPREADERS • MIXERS • HEATERS





COLD PRESSES • CLAMPS

Illustrated here are but a few of the more popular items in the Black Brothers Line of *Laminating and Gluing Equipment.* Whether you require small hand-operated bench equipment, or huge, high-production spreaders and presses, Black's can furnish your needs. Over 70 years of engineering experience is behind Black Brothers internationally recognized superiority in gluing and laminating equipment. Write for your free copy of Black's Catalog No. 11 today.

"If it's Gluing Equipment, we have it"

THE BLACK BROTHERS COMPANY, INC.

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DIMENSION STOCK

SOLID • GLUED UP • MACHINED TO SPECIFICATIONS

MAPLE BIRCH BEECH

Kiln Dried Dimension Stock
Plain S2S—Machined—Turned
Solid and Glued Up

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General Office: 666 Lake Shore Drive, Chicago 11, Illinois
Factory: Manistique, Michigan

Manufacturers of

Precision Kiln Dried
HARDWOOD DIMENSION
Finished and Semi-Finished
FURNITURE & INDUSTRIAL STOCK
Bed Rails, Glued Up Tops & Core Stock

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Box 312W, Fordyce, Arkansas

PLYWOOD DIMENSION

•

SOUTHERN HARDWOODS

⅜-in. and Thicker—Fully machined, circled, bored, shaped, etc.

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Telephone HArrison 7-3535

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Dimension and Lumber for Every Need
AD or KD Hardwood or Softwood

100% CLEAR OUR SPECIALTY

Milpac-Bed Rails-core stock-furniture parts & squares
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Germain Lumber Corporation
MONTGOMERY 1, ALA.

Phones: 4-2481 * 4-2482 * 4-2483 After 5 P.M.: 2-1410 or 2-568.

LUMBER CORES

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Glued-up Furniture Dimension
Precision kiln-drying and machining
Specializing in Gum and Poplar
Other species avaliable

THE PILLIOD LUMBER PRODUCTS CO.
FLORA, MISSISSIPPI

Here's the place to list your Dimension Stock and sell it quickly. Send us your copy and you will be surprised at the very nominal cost of this space

WOODICTIONARY

SAW BILL

The instructions given to a sawyer for sawing lumber of various kinds and sizes from given logs.

Packaging

(*Continued from Page 64*)

The following Federal Specifications will also be helpful but only certain containers of these groups are accepted as overseas shipping containers—available from Corps of Engineers district offices:

LLL-B-631C—Boxes; Fiber, Corrugated, for domestic shipment.

LLL-B-636C—Boxes; Fiber, Solid, Overseas, for domestic shipment.

NN-B-591a—Boxes; Fiberboard, Wood-Cleated. (See JAN-P-103 for overseas types.)

NN-B-621b—Boxes; Wood, Nailed and Lock-Corner. (Not for overseas.)

NN-B-631c—Boxes; Wood, Wire-Bound. (See JAN-P-107 for overseas types.)

NN-P-71—Pallets; Materials-Handling, Wood. (General Construction Requirements.)

100-73—Crates; Wood, Nailed, Domestic Shipment. (1000 pounds maximum net load.)

The following publications provide standards covering loading and bracing of materials in open and closed cars, available from The American Association of American Railroads, 59 E. Van Buren St., Chicago, Ill.:

Pamphlet No. 14—"Rules Regulating the Safe Loading of Commodities in Closed Cars."

Circular No. 42B—"General Rules Covering Loading of Commodities in Closed Cars."

"Rules Governing the Interchange of Traffic."

"Rules for Receipt, Handling, Stowing, Bracing and Delivery of Less-Carload Freight."

"Rules Governing the Loading of Commodities on Open Top Cars."

Supplement No. 2—"Rules Governing Loading of Military Vehicles Not Transported in Complete Trains and Under the Supervision of Troops."

Pamphlet No. MD-2—"Loading of Machinery on Open Top Cars."

"Loss Reduction Through Modern Techniques of Carloading and Bracing," by Edward Dahill, Freight Loading and Container Section.

"Consolidated Freight Classification No. 19."

Other Military Publications concerning packaging and shipping are as follows:

Available from Army Ordnance:

SB-OSSC—for various major item groups.

TM-9-2854—Ordinance Packaging and shipping. (Posts, Camps and Stations)

Available from Army Signal Corps:

Signal Corps Storage. (Paragraph 30, Shipping Methods)

Available from Dept. of the Navy:

Navy Carloading Handbook on loading and bracing methods.

The Army is also greatly concerned with the need for substitute materials for wood in the construction of military packaging. This presents a possible waste utilization product market and should be a good field for the manufacturer with competent research and engineering facilities and personnel. The present situation is perhaps best described in Mr. Sargeant's own words:

"It has become increasingly apparent that a large quantity of prime lumber is being used where less critical material would be suitable. We, in the packaging field of the Military Establishment, have become quite conscious of the short supply of good timber. The fact cannot be overlooked that when materials for packaging become critical, logistic problems pyramid and we must be prepared to make changes for adequate substitution.

A program has been initiated in our laboratory to investigate the use of substitute material for wood used in boxes, crates and blocking. These materials include products which may be either a major product or by-product of the lumber industry. Many wood products developed for civilian industry are adaptable to military requirements. However, there are so many new products being introduced that a staff many times the size of ours at Fort Belvoir would be required to evaluate each one thoroughly. It is obviously physically impossible for our staff to consider every new product introduced and then attempt to recommend or suggest to each manufacturer or supplier possible military uses of his product.

(*Continued in June*)

Hundreds of
applications prove
HASSALL
annular threads have
GREATER
HOLDING POWER
Annular threads are used where greater grip is a "must" — in industries like shoe manufacturing, asbestos siding, underlay flooring for linoleum, pallet manufacturing, boat building, etc., etc. The stronger holding power of these threads should solve many a wood fastening problem, maybe yours! Save, too, by using fewer nails. Write for samples.
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NEW

Products . . . . processes
equipment . . . . methods
materials & developments

Econaway Steam Humidifier

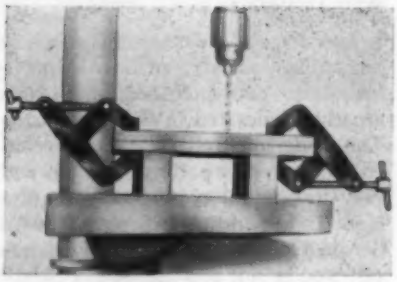
The Econaway Steam Humidifier is made to economically provide moisture in any place where it is necessary for the protection of materials. It is used in furniture factories, paper box factories, warehouses and many other places where moisture control is necessary.

This humidifier is designed to control the amount of moisture to any percentage needed, with very little attention, because it is self-controlled. For complete information, write the Economy Manufacturing Co., Dept. W, Bellevue, Mich.

New Masking Tape

Behr-Manning Corp., Dept. W, Troy, New York, announces the addition of a new masking tape to their line of Behr-cat Brand pressure sensitive tapes. This new product is No. 115 Stain-Resistant Masking Tape. It is specifically designed for use on lacquered, enameled, painted and porcelained surfaces where color separation, masking, packaging and holding functions are required.

It is said to be particularly effective on white, off-white and light pastel colored surfaces where the chemical reaction of regular type masking tapes have a tendency to stain immediately or with age due to storage or delayed transportation.



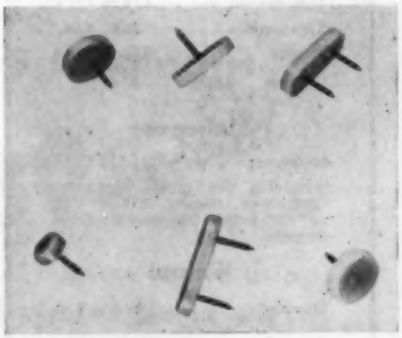
New Clamping Principle

A newly patented principle in clamping, which according to the manufacturer will change conventional work-holding methods, has been recently introduced by the Centinela Industrial Supply Co., Dept. W, 11930 Inglewood Ave., Hawthorne, Cal.

The new unit, trade-named the Saxton Clamp, is case hardened and combines the features and strength of a standard drop forged "C" clamp and a toolmaker's parallel clamp. By the use of a torque converting ball-bearing trunion in the new clamp, distorting, twisting action is completely eliminated. The trunion also absorbs vibration, thus providing a firm, steady grip throughout milling, routing and shaping operations. There is no unsupported screw or loose pad to "walk" off the center when pressure is applied against the anvil. The horizontal position of the screw (at all openings) gives ample freedom of motion and operation.

Vertical Band Resaw

Bulletin No. 54-1, just released by the McDonough Mfg. Co., Dept. W, Eau Claire, Wis., contains full information on the improved McDonough 54 inch Vertical Band Resaw. Fully described are such new features as the exclusive gear type feed roller drive. Detailed specifications and export data are also provided. Copies of the new bulletin are available on request.



New Plastiglides

A new inexpensive glide for wooden furniture has been introduced that eliminates the age-old complaints about glides. With the new Plastiglides, scratching and marring of hardwood, asphalt, or rubber tile floors is eliminated.

Made of cellulose-acetate-butyrate as well as polyethylene with brass plated steel tacks, Plastiglides, it is claimed, will not deteriorate, crack or split. They can be driven into the hardest woods . . . even if hit with a steel hammer, there is no danger of breakage or chipping. They are non-abrasive—will not wear out. Chemically inert to all acids and alkalis, they are unaffected by dampness or moisture. Write the Plastiglides Mfg. Corp., Dept. W., 3122 Nebraska Ave. Santa Monica, Calif.

WOODICTIONARY

Bay Window

A window projecting over the face of the wall and built up from the ground. It may be square or polygonal in plan.

KILN DRIED
LUMBER

FOR

immediate shipment

EITHER TRUCKLOAD OR CARLOAD LOTS

Northern Hardwoods

Basswood	4/4 to 8/4
Birch	4/4 to 8/4
Hard Maple	4/4 to 8/4
Soft Elm	4/4 to 10/4

Appalachian Hardwoods

Beech	4/4 to 8/4
Red Oak	5/8 to 8/4
White Oak	4/4 to 8/4
Wormy Chestnut	4/4 to 8/4

Southern Hardwoods

Ash	4/4 to 8/4
Hackberry	4/4, 5/4
Sap Gum	4/4 to 10/4
Tupelo Gum	4/4 to 8/4
Red Gum	4/4
Soft Maple	4/4 to 12/4
Sycamore	5/8, 4/4
Poplar	4/4 to 12/4
Cypress (AD)	4/4

Mahogany

Honduras	4/4 to 12/4

Available for direct shipment from New Orleans, AD or KD, or in truck shipments from Chicago.

Walnut

Steamed	5/8 to 8/4

Pine

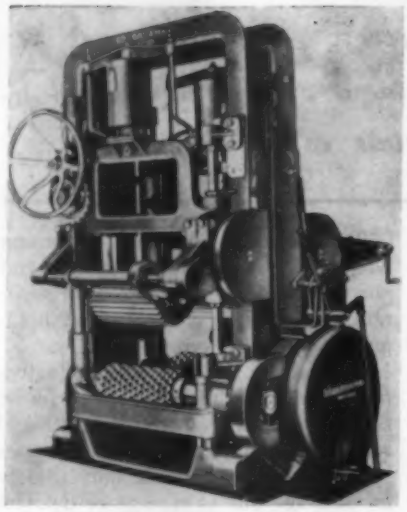
Parana (Brazilian)	4/4 to 8/4

The above hardwoods are in No. 1 Com. & Better Grades

and generally are available in higher grades.

Your inquiry will receive prompt and courteous attention

MONARCH
HARDWOOD
LUMBER CO.
3304 W. Belmont Ave.
Chicago, Ill. Tel. JUniper 8-1234



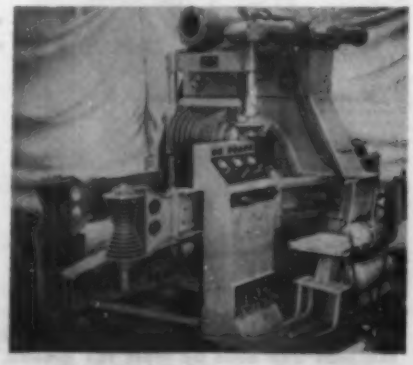
34" Variable speed debarker

New Debarker

The demand for sawmill waste and the utilization of hardboard species for pulp manufacturing has been greatly accelerated in the last decade. The Anderson Debarker was developed in Sweden to perform this job with very low initial cost, power requirement and operating expense. The Anderson Debarker will not only handle soft woods, but also effectively debark irregularities common to our hardwood species. No wood losses are materialized and only 1½ K.W.H. per cord is required to debark 11 inch diameter logs, for instance, at a capacity of 40 cords per hour.

A portable type Debarker mounted on a one ton trailer and barking up to 12 inch diameter logs, using a 10 H.P. Diesel motor, is also manufactured under the Anderson patents. This machine can readily be used in the woods, thus eliminating hand peeling, which is most desirable because of high labor costs and wood losses up to 12 or 15%. This portable type is especially suited for pulpwood and will debark soft as well as hard woods.

The first installation of the Anderson Debarker in the United States was



26"—40 HP Type A debarker

Handle Dry Kiln Doors SINGLE-HANDED?

You can do it with

The Universal **DOOR CARRIER**

One man—with one hand—and a Universal Carrier can open or close a kiln *in a few seconds.* And the carrier makes your doors last longer!—by gentler handling, without twist or strain. Automatic locking gives you good tight closures every time.

Write for further facts!

Universal **DOOR CARRIER, INC.**
1117 Cornell Avenue
Indianapolis 2, Ind.

VIRGESON'S
ONE STOP
SERVICE

SPECIALS

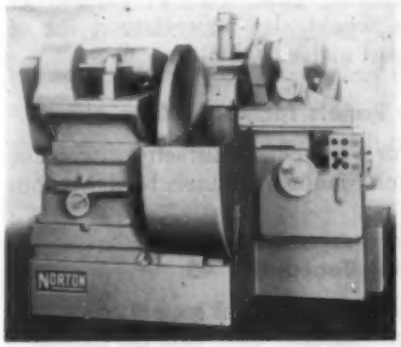
Appalachian Oak Drawer Sides
Southern Oak Drawer Sides
Gum Bed Rails Edge Glued, Moulded to Pattern

INQUIRIES WELCOME

JOE VIRGESON
LUMBER CO., INC.
COLUMBIA, SOUTH CAROLINA
P. O. Box 744, Phones 5165-5166

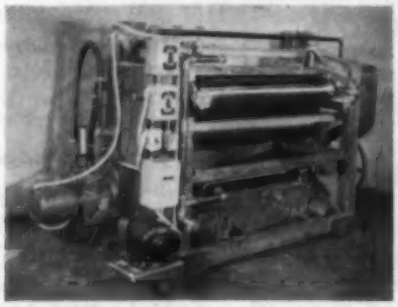
at the Southern Lumber Company, Warren, Arkansas, where also the Soderhamn Slab Chipper and Chip Screen have been installed.

Inasmuch as the Soderhamns Verkstader AB, Soderhamn, Sweden, at the present time, cannot satisfy the demand for the Soderhamn equipment in the United States, the Soderhamn Machine Mfg. Co., Dept., W, Tallodega, Ala. has also started manufacturing in the United States the barker, chipper, screen and conveyors. This equipment will be on the market during the third quarter of 1952.



Compressor Wheel

This new machine incorporates special features that simplify grinding operations on Jet Engine Compressor Wheels or similar work. The workhead spindle is designed for convenient mounting of face plates, chucks, or other workholding fixtures. Work up to 42" in diameter can be accommodated. The workhead is mounted on a swivel table and has longitudinal and cross adjustments. The workhead table also has longitudinal power traverse with automatic reversals from a hydraulic motor unit. For more information, write The Norton Co., Dept. W, Worcester 6, Mass.



Coating Machine

A precision spreading machine is now available equipped with integral heat for temperatures up to 250° F. to coat materials up to 120" in width at lineal speeds up to 400 feet per minute. The heat is supplied to the applicator rolls by means of forced water circulation from the water jacket of the supply tank within the lower frame. Heat is supplied by highly efficient immersion type electric heaters arranged for either single or polyphase electric supply and is thermostatically controlled. The lower supply tank furnishes coating material to the roll fountains (reservoirs) by means of a motor driven pump and the circuit can be arranged at will for either continuous circulation with gravity return to the supply tank or intermittent supply as required.

Made by The Black Brothers Company, Inc., Dept. W, Mendota, Illinois.

Slide Rule Calculator

Something new in the forest products field is a slide rule calculator, developed by the Chicago and North Western Railway that quickly calculates measurement in cords or board feet for pulpwood, logs, and lumber, and provides for rapid calculation when pulpwood is shipped in railroad cars of different dimensions. For more complete information write: Chicago and North Western Railway, Dept. W., 400 West Madison Street—Chicago, Ill.

(Continued on page 72)

WILLOW
IS FEATURED IN '52
FOR
FURNITURE
CABINETS
PANELING
CASKETS
CORES

Our three mills are located in the Mississippi, Atchafalaya and Red River basins of Louisiana which produce the finest Willow in America.

Large and well assorted stocks of this fine willow are ready for immediate mill shipments at all times. We can meet your exact needs, all thicknesses and grades 4/4" to 8/4" or include in mixed cars with Port Barre white ash and other Southern Hardwoods. Prompt attention will be given to all inquiries.

The Port Barre
Lumber Industries, Inc.
Manufacturers of Southern Hardwoods
Port Barre, La.

Are You Spending Hours
to do a
30 Second
job

Could be . . . unless you're using modern electronic gluing and laminating methods.

Mann-Russell
RF Generator

Mann-Russell
Veneer
Edge-Gluer

Mann-Russell
Lumber
Edge-Gluer

Speed production — cut costs — with Mann - Russell Electronic equipment — generators, patchers, lumber and veneer edge-gluers. All units custom-designed to meet your particular needs and installed by factory-trained experts.

If your production calls for gluing up short lengths, edge-gluing hard or soft wood veneers, or other lamination — write today for specific data, outlining your problem.

Mann-Russell
Electronics
Dept. 20

NORTHWEST SYNDICATE, INC.
1321 A STREET TACOMA 1, WASHINGTON

GREEN LUMBER MEANS TROUBLE FOR YOU, TOO!

● G-R-E-E-N L-U-M-B-E-R spells PROFIT LOSSES, especially these days with high operating costs and sky-high taxes! You *must* find ways to increase production and eliminate waste and rejects.

The *surest* way to keep *your* profit level high is to depend on Standard Dry Kilns for exact conditions, uniformly delivered throughout every load—giving fast, uniform drying without checks, honeycomb, undue warpage and other defects.

Need a new kiln? Need to remodel an old natural draft type? Don't gamble! You can rely on Standard's internal fan, automatic reversible cross-recirculation—the *re-order* choice of leading woodworking operators throughout the country!

C. F. Work & Sons, Inc., of Memphis, relies on the uniform distribution of heat, humidity and ventilation provided by world-famous Standard dry kilns to turn out the quality-dried lumber that has helped build their reputation for highest quality hardwood specialties.

WE SELL THE FIRST *Standard...*
Performance SELLS THE REPEATS!

Write for Illustrated Standard Catalog

Manufacturers of Internal Fan Kilns

STANDARD
Engineers and Manufacturers Since 1897
DRY KILN COMPANY

P. O. BOX 5708 • INDIANAPOLIS, INDIANA

Wood Puzzlers

This department is designed to help you find an answer to your production and sales problems. Send us the facts. Experience has shown that some other readers can help. Or if you can answer any inquiry below, write us and refer to the number indicated.

Pulpwood in Poplar, Beech, Pine, Etc.—No. 40

We are interested in otaining a steady supply of pulpwood-poplar, beech, pine, etc., in carload or truckload lots. We would also appreciate a list of suppliers for 6/4 hard maple. (Ohio)

Crotch Mahogany Panels for Table Tops—No. 41

We are looking for a lumber manufacturer who can supply us with crotch Mahogany panels for table tops and doors. (N. Y.)

Light Weight Panel Board—No. 42

Can you help us find a source of supply for a light weight panel board material that can be had at a reasonable price? It should compare in strength to ¼-inch plywood, although plywood itself is not well adapted to edge nailing or for smooth edge finishing.

Quality Woodworkers choose WAPAKONETA Knives.

"BIG CHIEF" for General Purpose High Production Work.

"MOHAWK" for Southern and similar soft woods.

For dependable high speed production use...

Wapakoneta
BIG CHIEF and MOHAWK
HIGH SPEED KNIVES
THE WAPAKONETA MACHINE CO.
WAPAKONETA, OHIO

INCORPORATED 1891

Is there some new kind of panel material that will answer this purpose? (Ohio)

Spindle Duplicating Lathes—No. 43

Perhaps you could give us some information on spindle duplicating lathes. We are particularly interested in a duplicating machine for turning small toy parts, etc., semi or full automatic, or any jigs or fixtures for converting hand turning lathes to automatic. (Pa.)

Air Hammer for Peeling Veneer Logs—No. 44

We understand that there is a light weight air hammer on the market that is being used to bark or peel veneer logs. If you have any information as to who manufactures such an air hammer, we would be glad to receive the information. (Ind.)

Wood Rosettes for Decorating Furniture—No. 45

Can you give us the name of a concern making wood rosettes for decorating furniture? These run from ¼-inch to 4 inches in diameter and are generally about ¼ inch thick? (Ia.

Southern and Western Lumber in Truck Load Lots —No. 46

Can you tell us who could furnish Southern lumber in truck load lots for delivery into Wisconsin? It should be air dried or kiln dried, rough and surfaced, dimension and construction material. Also Douglas fir, Southern pine, Hemlock, Ponderosa pine, etc. (Wis.)

"OLIVER" NO. 299
Single Surface Planer

This accurate, fast 24-in. Surfacer turns out smoothest work

Takes stock up to 24" wide, 8" thick. It feeds stock at any rate from 18' to 40' a minute at the turn of a dial. Controls centrally located for operator's convenience. Has built-in jointing and grinding rigs. Precision built to insure rigidity and permanent alignment of parts. *Write for Bulletin No. 299.*

OLIVER MACHINERY COMPANY
Established 1890 **GRAND RAPIDS 2, MICHIGAN**

Where
does ATLANTIC LUMBER go?

An inviting group of "Travelawn", fine Beech furniture, manufactured by the Goshen Manufacturing Company, Goshen, Ind.

Whether in sturdy, graceful and comfortable outdoor furniture, or in other fields, Atlantic hardwoods and cypress give many manufacturers greater profits with corresponding increased satisfaction to the ultimate users. Each of the several hardwoods has special characteristics that makes it advantageous for particular application. The choice of woods is important to you.

In your selection of hardwoods you have at your call an experienced Atlantic Man who can help you save money and improve your product. His advice will prove helpful to you.

THE ATLANTIC LUMBER CO.
88 BROAD STREET, BOSTON, 4, MASS.
1055 SENECA, BUFFALO 10, N. Y.

New Products

(Continued from page 69)

Variable Speed Units

The Sterling Electric Motors, Inc., Dept. W, 5401 Anaheim, Telegraph Road, Los Angeles, 22, Cal., announced the addition of Type KFEA variable speed units with single reduction gears in ratings of 20 and 25 horsepower.

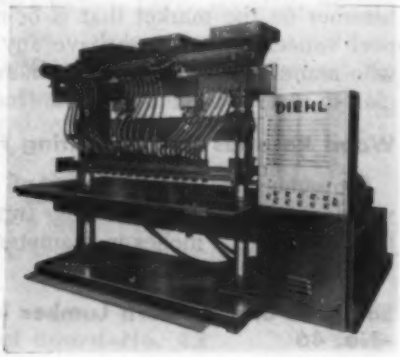
These units are manufactured in speeds of 728 r.p.m. and lower with infinite speed adjustment within the ranges of 2:1, 3:1 or 4:1. Illustrated is one of the new 25 horsepower single reduction models with a speed variation of 4:1 and output speeds of 324 r.p.m. down to 81 r.p.m.

Features of the drive are: positive adjustment of pulleys, accurate maintenance of speeds under varying loads, belt tension in proportion to load, positive oil seals, single train helical gears, Herringbone Rotor, and direct-through ventilation.

Drill Grinder

A New Drill Grinder for 2-lip twist drills, from No. 70 to ¼", either straight or tapered shank, is announced by The Dumore Company, Dept. W, Racine, Wisconsin.

This new tool is said to offer the small drill user very interesting economies in increased hole production, lower drill costs, reduction of scrap loss, and improved hole finish and tolerance. Its rugged construction and simplicity of operation mean that even untrained help can grind drills right the first time.



Hydronic Nailer

Industry is now being offered a nailing machine with "push-button" operation, completely controlled by electronics and powered by hydraulics.

CARBIDE TIPPED SAW BLADES

with any others and you'll agree they're outstanding. Cut with equal ease thru plywood, laminated wood, teak, fireproof lumber, linoleum, plastics etc. Huther Quality in Carbide Saws is a "standard" among leading craftsmen.

Write for folder

HUTHER BROS. SAW MFG. CO., INC.
1290 University Ave. • Rochester 7, N. Y.
SAW MAKERS FOR OVER 65 YEARS

Do You Need ?

Gum or Poplar Plywood
Single Ply Rotary Cut Veneer
Glued-Up Lumber Core Stock
Dimension, Kiln Dried and Semi-Finished
Crates—Skids, Nailed or Stock Cut to Size
Box Shooks or Assembled Boxes
Southern Hardwood Lumber

(Air Dried, Kiln Dried—Rough or Surfaced)

If so, send us specifications covering your needs. Our SERVICE, backed by nearly FIFTY YEARS EXPERIENCE, will please you. ASK YOUR FRIENDS.

The Frank A. Conkling Co.

Memphis 3, Tennessee

PHONES:

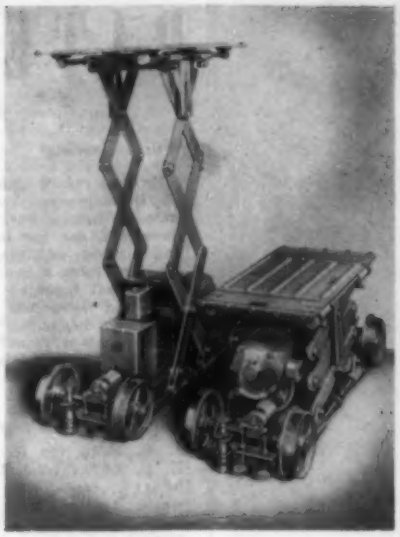
8-8747—5-2269—5-1191—37-2795

This new offering in nailers is called the Diehl Hydronic Nailer, and is being produced by The G. M. Diehl Machine Works, Inc., of Wabash, Indiana.

The extreme simplicity and precision action of this new nailer is particularly important to all industries manufacturing packing crates, boxes, skids, reels, pallets, and all other wooden devices so vital to the shipping of goods and products.

Veneer Edge—Banding Press

Supplementing the several Raybond gluing devices, the recently released Raybond veneer edge-banding press produced by Electronic Heating Corporation, Dept. W, Newton Highlands, Mass., finds immediate welcome among furniture manufacturers. This is a vertical press, requiring little floor-room, and is operated by one worker, as it is open on two sides for easy manipulation of the panels. Uniform pressure is maintained by the series of air cylinders at the lower edge. Multiple panels may be veneer edgebanded in one operation in this press as easily as one panel at a time. Templates for curved or serpentine edges may be inserted when needed.



Special Portelvator

Frequent and complex handling of materials for production in various industries, sometimes threatens to abolish the savings effected at the primary stage of processing. Thus, a quantity of material removed from storage for operation "2", would be split three ways for operations "3A", "3B", and "3C", and each of these quantities split again for operation "4A" etc. During this processing, part of the material would be sent back to storage following each operation, thus maintaining a perpetual inventory of material in each stage of process except the final stage.

Two special Portelvators were designed and built by The Hamilton Tool Company, Dept. W, Hamilton, Ohio, to meet special requirements of this situation. They operate on track which skirts the storage shelves and processing stations, are moved manually from station to station, and are elevated electrically.

Specifications include the following: scissor type lift mechanism is operated by 1 H.P. elevator type motor through standard Portelvator worm, worm gear and screw power transmission; motor is actuated through foot control from either end of table; electrical controls include gear driven limit switch and reversing magnetic starter.

"March of Pine" Booklet

"March of Pine" is a new quarterly published by N. Z. Forest Products, Ltd., Auckland, N. Z. This 24-page house organ is designed to interest friends, business associates and investors as well as the growing army of employees. The editor is Clive Tidmarsh.

Here's a Permanent Star

W. T. SMITH LUMBER CO.

HITCH YOUR WAGON TO IT!

For 68 years now, our customers have been buying from us with confidence . . . confident their needs for Southern Pine and Hardwoods could be met by the unbeatable combination of large acreage, selective cutting, modern mills and a will to deliver the goods promptly and properly. Give us a try; we're confident you'll become a permanent customer.

BUY DIRECT

Southern Pine and Hardwood Lumber
Oak Poplar Gum

W. T. SMITH LUMBER CO.
CHAPMAN ALABAMA
68 YEARS OF MANUFACTURING YELLOW PINE AND HARDWOODS

AUTOMATIC GAUGE
FOR SWING SAWS
SAVES $30 to $50 A MONTH
IN LUMBER AND LABOR
30 Days Free Trial
ORDER NOW
OR SEND FOR
CIRCULAR
THE TANNEWITZ WORKS GRAND RAPIDS 4, MICHIGAN

Tannewitz
HIGH SPEED
BAND SAWS

Saws faster, smoother and easier than conventional band saws. Regularly increase production from 50% to 100% with consequent reduction of costs. Built by sawing machinery specialists. Write for circular.

THE TANNEWITZ WORKS
GRAND RAPIDS 4, MICHIGAN

There is a difference

...in carbide tipped saws!

All carbide tipped saws are NOT alike. No sir... MEYCO circular saws are in a class by themselves because the blade and tooth design have been engineered SPECIFICALLY for carbide teeth.

The W. F. Meyers Company has been making precision tools since 1888 and their experience in the field of diamond tooth saws and carbide cutting tools is extensive. This engineering know-how is what has made MEYCO carbide tipped circular tools accepted throughout American industry.

Tungsten carbide's high resistance to abrasion makes it especially adaptable to cutting materials that rapidly wear out the best steel tools. Carbide produces smoother, finer cuts of wood and sails through plastics and other synthetic materials that offer a high resistance to cutting by steel.

And when the saw is properly engineered for tungsten carbide it will run longer between grinds, give you more regrinds—you have a work saving, money saving tool that will increase production many fold. Write for descriptive catalog and price list No. 27.

W. F. MEYERS CO., INC., BEDFORD, INDIANA

PATENT DIGEST

by Royden C. Rinker

Wood Sawing

M. Soss. U. S. 2,578,097, Dec. 11. In a power-operated saw, a main frame, bars extending therefrom, one bar being tubular and having adjoining ends secured to form a gear housing, a drive shaft mounted through the tube and connected with bevel gears and means for transmitting rotary motion from a motor to the rear of the drive shaft.

Adhesive

J. E. Fenn (to C. H. Brown) U. S. 2,579,481-2-3, Dec. 25. Adhesive containing sulfite-pulp waste treated with phosphoric acid and blended with polyvinyl alcohol and urea.

Wood Bending

C. C. Cress U. S. 2,579,800, Dec. 25. Combined bending machine and nailing table comprising a flat circular table top and a supporting cylindrical standard therebeneath, a profile ring fixed on the upper face of the table in combination with a sweep arm journalled about the standard beneath the table top, a bending roller carried in the plane of the profile ring to bend wooden strips therearound and clamping means for securing the ends of strips against the external periphery of the profile ring.

Log Turner

J. D. Calhoun. U. S. 2,579,901, Dec. 25. Apparatus for use with a reciprocating log carriage comprising a log deck movable to impel a log onto the carriage, a lever located on one side at the skid and toggle connections comprising an oscillatory shaft between the skid ways.

Band Saw

M. Orescan (U. S. 2,579,955, Dec. 25. Tiltable table band saw.

Pinewood Resin

R. W. Ivett (to Hercules Powder Co.) U. S. 2,580,098, Dec. 25. Contacting pine wood resin with gaseous ammonia whereby the melting point is raised.

Wood Swelling

W. Lindenthal. U. S. 2,580,308, Dec. 25. Swelling wood with a composition of a natural acidic resin, an oxygenated solvent, and a basic substance which will react with the resin to form a water-dispersible composition.

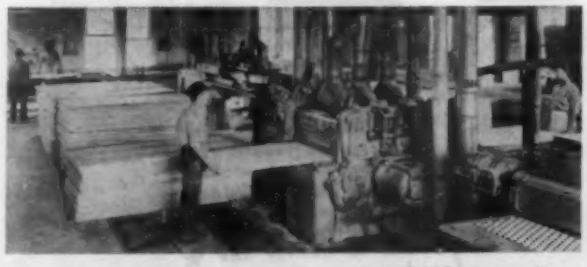
Cellulose Treatment

K. Ward, Jr., C. M. Conrad and L. Segal (to United States) U. S. 2,580,491, Jan. 1. Process for reducing crystallinity of native cellulose by treating with a primary alkylamine.

The "Extra Ingredient" in

Permawood
HARDWOOD PLYWOOD

For 34 years, skilled workmen, supervisors, and inspectors have cooperated to bring PERMAWOOD to its present highly regarded position in the industry. This pride of products is the "extra ingredient" in PERMAWOOD Hardwood Plywood.



Panels get high polish and correct thickness in Darlington's Drum and Belt Sanders.

We make PERMAWOOD panels in standard sizes, all veneer construction from 3/20" to 1-1/16" thick, and in lumber core construction in 3/4" and 13/16" thickness. Widths from 30" to 48"; lengths from 36" to 96". Write for latest stock lists and prices.

DARLINGTON VENEER CO., INC.
Established in 1918
DARLINGTON, SOUTH CAROLINA

Plywood

R. S. Brundige. U. S. 2,578,781, Dec. 18. Cellular plywood produced by wrapping long expansible forms with metal foil, coating with adhesive, assembling over the forms a series of mating plywood channel units made up with adhesive between piles and on the surface of the unit, said units coacting to form tubular units, assembling the units in contact with the expansible forms in place between facing units of sheet material, sustaining the facing units against separation, expanding the expansible forms, causing the adhesive to set, and withdrawing the forms, leaving the foil as an adhering coating.

Wood Planer

H. T. Moore. U. S. 2,577,975, Dec. 11. A wood planer mounted on a stationary horizontal work platform.

Impregnating Wood

G. H. Bonnell, A. J. Bailey, and G. G. Garlick (to Protection Products Manufacturing Co.) U. S. 2,578,039, Dec. 11. A tank for impregnating wood with treating materials.

Panel Structure

R. C. Perkins. U. S. 2,578,085, Dec. 11. Building wall structure comprising three-ply plywood panels having layers of wood in criss-cross arrangement and assembled abutting relationship with a joint there-between.

Log Debarker

J. E. Holveck and A. G. Rockwood (to Worthington Pump & Machinery Corp.) U. S. 2,578,804, Dec. 18. An apparatus for hylogs including centripitally dldraulically removing bark from rected nozzles annularly arranged so that h'gh velocity jets of water issuing therefrom will converge toward the periphery of a log to remove the bark.

Tall Oil

E. A. Van Valkenburgh. U. S. 2,578,955, Dec. 18. Composition of tall oil and aromatic oil for compounding with GR-S synthetic rubber.

Lignin Compounds

W. C. Goss (to United States Sheetwood Co.) U. S. 2,578, 695, Dec. 18. Thermosetting binder binder comprising a mixture of brown rotted wood, ammonium hydroxide, and a phenol.

Log Barking

N. Alfsen. U. S. 2,581,617, Jan. 8. Log debarking device in which debarking is effected by means of toothed gears.

Wood Fiber Base Material

E. P. Cox (to Champion Paper and Fiber Co.). U. S. 2,581,635, Jan. 8. Removing the non-cellulosic constituents from wood by pulping, impregnating with phenolic resin and curing the resin.

WRITE FOR FREE BOOKLET

Patents Pending

MONTGOMERY BLO-HOG
Eats Up Everything

. . . including Pine, Oak, Gum, Hickory, Elm, Wet Veneer Round-up and Sandy Bark.

Conveyor-fed, no attendant is required to "feed the hog."

Sturdy breaker lugs give absolute protection from major damage caused by tramp steel.

Maintenance costs unbelievably low.

Write for bulletin and details.

Jacksonville Blow Pipe Co.
Jacksonville, Florida

. . . TO MEET EXACTING SPECIFICATIONS
for AIRCRAFT. TECHNICAL. REGULAR DRYING
up to 50' lengths—up to 6" thick

*Drying to satisfy Dielectric Characteristics

"SPECIFICATION" CUSTOM KILN DRYING

The finest drying of Western Woods, Hard & Soft Domestic and Imported Woods

5 Fully Automatic Cross Circulating Kilns operated by trained, experienced kiln engineers

RE-SAWING . . . SURFACING . . . SMOOTH-END TRIMMING . . . MOULDINGS

LUMBER MANUFACTURERS INC.
Cable Address: Lumac
Long Distance—SU 1101
for Gordon Wilkinson, Pres.
2536 S.E. STEELE ST. PORTLAND 2, OREGON
A PROVEN SOURCE OF QUALITY CUSTOM KILN DRYING

WOOD TRADING POST

139 N. Clark St., Chicago 2, Ill.

Trading post ads must be in publisher's office 20th of the month preceding month of publication. Illustrations must be limited to ½ size of space used. No reverse plates. Publisher reserves right to classify, edit, or reject ad. Space sold only in 1-in. units—Size 1-in. deep x 2 3/16 in. wide. Cost, $10.00 per in., cash in advance. No agency commission or cash discount allowed. 5% discount allowed if payment is made in advance for 1 yr.

Trading Post c/o
WOOD & WOOD PRODUCTS
139 N. Clak St., Chicago 2, Illinois

HELP WANTED

WANTED
BILLER AND DETAILER

For special millwork house in Southern New England to make full-size details and material bills of architectural woodwork. Permanent position with one of oldest millwork firms in New England. Advise fully as to references and qualifications. Write Box A 175, WOOD.

TECHNICAL SERVICE REPRESENTATIVE

Leading manufacturer of adhesive resins for plywood and related industries is seeking a technical service representative. Technical training, experience in the woodworking industry and willingness to travel required. Will act as intermediate between sales management and sales personnel in the field and work closely with our Research Department. Our staff knows of this opening. Please send a complete resume of your qualifications to Box A-189 Wood & Wood Products.

WANTED:

General Superintendent for a well-established Casket Manufacturer, located in Massachusetts. Experience in Woodworking, Production, Lumber Buying, Kilns, and Milling. This is an excellent opportunity for the right man. Please write stating past fifteen years experience, References and salary expected to Box No. A-195 c/o Wood & Wood Products.

Superintendent: For old established woodworking plant in Wisconsin employing 100 men. Must be experienced and qualified to assume full responsibility for store fixture and architectural woodwork factory production. Present superintendent retiring. Excellent opportunity. Write Box A-194. WOOD & WOOD PRODUCTS.

HELP WANTED

Cabinet Engineer

Must have wood-working experience with technical background. Excellent opportunity to assume key position and develop into executive with Radio & Television factory. State qualifications, previous connections and salary required. Box A-191 c/o WOOD & WOOD PRODUCTS.

POSITION WANTED

Position Wanted as Superintendent in Veneer Plant or Box factory. Sixteen (16) years experience in the manufacturing of plywood, wirebound and resawn wooden boxes. Write Box A-193 WOOD & WOOD PRODUCTS.

EMPLOYMENT

J. L. OVERHOLT
WABASH EMPLOYMENT AGENCY
202 S. State St.—Chicago, Ill.
Places all types of Woodworking Executives, Gen. Mgr., Works Mgrs., Superintendents, Etc.

LUMBER, PLYWOOD, ETC.

BOX LUMBER
Rough — S2S — Resaws Center
4/4" - 5/4" - 6/4" - 8/4"
Gum, Tupelo, Elm, Cottonwood
Willow, Yellow Pine and Misc. Hardwoods
CRAIG LUMBER CO.
325 Falls Bldg. Memphis 3, Tenn.

WEST COAST LUMBER
Kiln Dried Douglas Fir Industrial Clears All thickness to 16/4
Millwork Stock Rough or Surfaced
Mouldings, Ladder Rails and Cut Stock
Al Clements Lumber Co.
PO Box 908 Eugene, Oregon
TWX EG 049 Phone 5-3317

URGENT
WE NEED 5 CARS OF PLYWOOD

3/20 or 3/16 gum or poplar plywood door skins

3 ply hot plates press or redried cold press is acceptable. Moisture content not over 8%.

No. 3—3 grade Sanded 2 sides

Widths—18½ up to 36½
Lengths—81" and 85" only

Prices Must Be Reasonable—
Large Volume Involved
Reply to P. O. Box 216,
Cornwall Landing,
New York

LUMBER, PLYWOOD, ETC.

Wanted by well-rated Eastern Manufacturer Carload Lots, Slats S4S, edges rounded
Sizes
5/16 x 1-3/4 x 17-1/8
5/16 x 1-3/4 x 18-11/16
1/4 x 1-11/16 x 20-3/8
9/32 x 1-61/64 x 11-9/16
9/32 x 1-61/64 x 9-9/16
Beech, Birch, Maple, and Ponderosa Pine, air dried and kiln dried 12% to 15%
Box A-192 c/o
WOOD & WOOD PRODUCTS

BUSINESS OPPORTUNITIES

ATTENTION SALESMEN:
Stocks for guns, all models
WALNUT AND BEECH
Mainson, Boinem,
rue Hayeneux 101-103
Herstal, Belgium

Stock and storage tank company located in Midwest since 1896. Ample buildings and equipment in excellent condition—good labor conditions. Also suitable for distribution point. Owner ill. Write Box 250, Cherokee, Iowa.

WANTED. User of Appalachian Hardwood lumber to locate new or branch plant in West Virginia. God supply lumber available from existing mills who will co-operate with new industry. Timber and mills can be purchased if desired. Write—Appalachian Forestry Associates, Riverton, West Virginia.

BUSINESS OPPORTUNITIES

Well established 4A1 company with large directly controlled production and substantial wholesale business has opening for the right man who should be between 30 and 40 years of age and have a reasonable background in the wholesale business, principally in Appalachian and Southern Hardwoods, as well as Yellow Pine.

This is a splendid opportunity for the right individual not only for security but earnings.

Give complete history in reply.
Box A-181, Wood

MACHINERY

FOR SALE BORING MACHINE
Bell No. 105 horizontal 4 spindle boring machine serial No. 28401 motor drive 220 V 3 PH 60 CY motor control panel No. 800 4 boring heads 4 spindle units & 2 extra hold downs. Can't tell from new. Less than 200 hours actual operation. Complete with dust heads & all piping. $2500.00 F. O. B. Your Plant. Beseke Corp. Columbus, Miss.

UNIVERSITY OF MICHIGAN LIBRARIES

Econaway Abrasive Belt Splicer

Precision built. Will splice any kind of abrasive belts and sleeves straight and true in two minutes.

Also Steam Humidifiers.

Write for particulars.

Dealers Wanted.

Econaway Manufacturing Co.
Bellevue, Michigan

TOOL UP WITH WOODWORKERS

KITCHEN CABINET DOOR CUTTERS

Made of High Speed Steel and Carbide tipped, also Vigorite Processed for long wear. ½" to 1¼" holes with three teeth.

Write for circulars.

WOODWORKERS' TOOL WORKS
222 S. Jefferson St. Chicago 6, Ill.

Stk. No.

204 18 HT Ross Fork Lift Truck, 10,000 lb. capacity, cab, 17'6" lift, 48" forks, 52"-80" carriage, 7:50 x 15 tires, Serial 5795. Reconditioned in our own shop.

212 15 HT Ross Fork Truck, 15,000 lb. cap., 17'6" lift, 72" forks, 52"-80" carriage, 9:00 x 15 tires, Serial 5229. Excellent mechanical condition.

213 Series 70-6057 Ross Straddle Carrier, 10,000 lb. capacity, package size 48" x 52" Serial No. 73567. Very clean appearance and mechanically sound.

210 Buda FB20-24, 108" lift, 30" forks—rated 2000 lb. @ 24", Cushion Tires, Serial No. 0151106. This truck just like new. Was used only two weeks. Priced at $400.00 under original sale price.

205 Buda FB40-24, 108" lift, 30" Forks—rated 4000 lb. @ 24", cushion tires, Serial No. 40516. Like new—used less than 30 days. Price is $600.00 less than new sale price.

All prices F.O.B. Our Yard
Terms 50% with order; balance Sight-Draft, Bill-of-Lading.
Subject to prior Sale.

Milwaukee Power Equipment Company
1111 W. Bruce Street
Phone: Orchard 2-1342
Milwaukee 4, Wis.

You will get the maximum benefit from your copy of Wood and Wood Products if you route it to all key personnel.

Here's a New Box Design that Eliminated Pilferage

A wirebound box that completely eliminated pilferage of valuable chrome plated brass plumbing fittings, cut container tare weight 65 percent, and brought about important packing-for-export savings won the first-prize blue ribbon in the Export Division of the annual Protective Packaging Contest in Cleveland last October. The competition was held in conjunction with the annual meeting of the Society of Industrial Packaging and Materials Handling Engineers.

The 1951 prize-winning export container wirebound box that was entered in the contest by the Containers and Materials Handling Division of the American Radiator & Standard Sanitary Corporation. C. R. Gustafson is Chief Engineer for this Division. The blue ribbon was awarded by a judging panel of distinguished packing-for-export experts.

The official entry blank that accompanied the American-Standard entry stated that, compared to the nailed wooden box formerly used, the wirebound box reduced displacement by 1.5 cubic feet, or 17 percent; slashed shipping container tare weight 74 pounds, or 65 percent, and gross shipping weight by 14 percent; and completely eliminated pilferage during shipment.

The chrome plated brass plumbing fittings over-packed in the box are highly valuable loot on the "pilferage market," hence a watched-for item by thieves.

The wirebound box has been used as a master container for export shipments of packaged fixtures for over a year. Formerly, pilferage of export containers was frequent and costly.

Since converting to the wirebound master container, the Louisville plant of the American Radiator & Standard Sanitary Corporation has not received a single report of pilferage. The nine binding wires that are securely stapled to the face boards of the box and the special liner make the container practically pilfer-proof themselves.

In addition, five tensional steel straps (sealed with special lithographed Signode seals bearing the American-Standard identification) are used to further deter petty pilferage. Assembly of the mat is accomplished with cement coated drive screws, which are virtually impossible to remove.

The nailed-wood master container formerly used measured 34 x 22 x 20 inches, as compared to the 33 x 21 x 18-inch measurements of the wirebound master container. Thus displacement has been reduced 1.5 cubic feet or 17 percent—from 8.7 to 7.2 cubic feet. The weight of the former container was 114 pounds, as compared to the 40-pound tare weight of the wirebound box. This is a tare weight reduction of 74 pounds, or 65 percent, which results in a reduction in shipping weight from 514 to 440 pounds, or 14 percent.

The prize-winning wirebound export box consists of only three parts—the two ends and the one-piece wirebound "mat" that comprises the four side panels of ¾-inch resawn oak securely stitched to the special inner "Craveneer" liner. This liner consists of ⅛" oak veneer securely glued between two heavy sheets of kraft paper.

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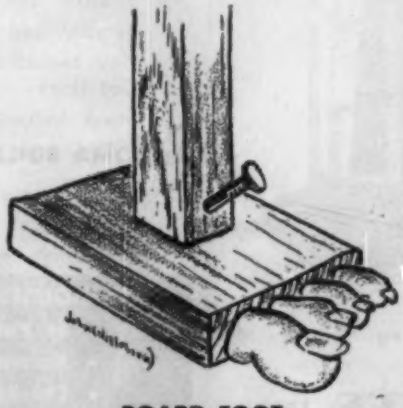

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2 Resaw	23 Walnut
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4 Planing Mill	25 Hemlock
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